

**THE CITY OF
AUGUSTA, GEORGIA
UTILITIES DEPARTMENT**



**BACKFLOW BY CONTAINMENT
PROGRAM**

**APPROVED BY GEORGIA EPD
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POLICY AND PROCEDURES
for
BACKFLOW-PREVENTION BY CONTAINMENT

SECTION I. INTENT, PURPOSE AND CONTROL

1. INTENT:

To **recognize** that all Consumer's water systems have connections to apparatus, vessels, etc., that could have impurities in varying degrees and, if not properly controlled and contained, could contaminate or pollute both the consumer's water system and the public potable water supply/system. It is also the intent to apply the principle that the type of protection required shall be determined by whether the impurities are hazardous contaminants or non-hazardous pollutants.

2. PURPOSE:

(A) To **assist** the consumer in protecting his own potable water system against actual or potential backflow and/or backsiphonage of any contamination or pollution **by controlling** each cross-connection or potential cross-connection within the Consumer's premises. Referred to as "**THE FIRST LINE OF DEFENSE**".

(B) To **protect** the City of Augusta, Georgia's potable water supply/system against actual or potential backflow **by containing**, within a Consumer's premises, any pollution or contamination that has entered, or may enter, into the consumer's potable water system through any undiscovered or uncontrolled Cross-Connection on said premises.

Referred to as "**THE SECOND LINE OF DEFENSE**".

(C) To **eliminate** uncontrolled Cross-Connections to non-potable systems as well as uncontrolled interconnections to any potable water system that is not part of the City of Augusta, Georgia's Water System, **By installing** an appropriate Backflow prevention device(s) to isolate such system(s) from the City of Augusta, Georgia's potable water supply/system.

(D) To **establish**, **coordinate**, **execute** and **maintain** a total **Backflow-Prevention Program**.

3. CONTROL:

Requires cooperation between City of Augusta, Georgia's Utilities Department, Plumbing Inspection Department and it's water consumers in the execution of, and the adherence to the duties and responsibilities of each, as set forth by this policy and these procedures, in conjunction with other applicable codes, rules and requirements.

SECTION II. RESPONSIBILITIES

1. THE CITY OF AUGUSTA, GEORGIA UTILITIES DEPARTMENT

The Director of Utilities for the City of Augusta, Georgia as authorized through ordinances adopted by the City of Augusta Commission/Council, is primarily responsible for preventing contamination and pollution of the public water supply/systems by instituting a program of **"BACKFLOW PREVENTION BY CONTAINMENT"**.

Such responsibility begins at the point of origin for the public potable water supply and includes all of the distribution system, and terminates at the service connection for the consumer's water system. The required consumer-supplied backflow prevention device at the service connection shall provide maximum (Reduced Pressure Zone Assembly - RPZ) or minimum (Double Check Valve assembly - DCV) protection as concluded by the Director or his authorized representative. In addition, the Director shall exercise reasonable vigilance to ensure that the consumer adheres to this Policy and these procedures as stated and outlined herein.

Ordinance #6223 of the Augusta Richmond County Code, Title 5, Article 4 For Backflow Prevention by regulating the construction and maintenance of cross connections, auxiliary intakes, bypasses and interconnections affecting Augusta, Georgia's potable water supply.

2. THE CITY OF AUGUSTA, GEORGIA PLUMBING INSPECTION DEPARTMENT (INSPECTOR)

The Plumbing Inspection Department is primarily responsible for enforcing the plumbing code to prevent contamination and pollution within the consumer's water system through a program of **"BACKFLOW PREVENTION by CROSS-CONNECTION CONTROL"** requiring that all outlets terminate through an approved air gap or be controlled by an approved mechanical back-flow prevention device. Such responsibility begins at the service connection to the premises and extends to the extremities of the Consumer's potable water supply.

3. THE CONSUMER (customer)

The consumer has the responsibility for protecting both potable water in his own system from degradation due to conditions originating on his premises, **by complying with the State of Georgia's plumbing code.** and also by protecting the quality of water in the City of Augusta, Georgia's water supply/system against any potential or actual health hazard(s) generated on or from his premises through uncontrolled cross-connections, **by BACKFLOW PREVENTION AT THE SERVICE CONNECTION.**

Therefore, after the City of Augusta, Georgia's Utilities Department has determined the type of backflow protection that is required at the consumer's service connection, the customer is then

responsible for the costs of procurement, installation, testing, repair and maintenance of said device.

SECTION III. GUIDELINES:

This program presents guidelines which have been developed to protect the City of Augusta, Georgia's Water System against contamination or pollution resulting from backflow of objectionable fluids through cross-connections. It is the intent of these guidelines to provide this protection at the **service connection** that may result from backflow through cross-connections. All water users are encouraged to utilize separate systems for their process water use so as to prevent possible pollution or contamination of their internal water supply.

A. Installation of an approved cross-connection control device may be required of water users who represent potential sources of contamination to the public water systems.

A potential source of contamination is defined as, but not limited to, any of the following:

- 1) Sewerage pumps used for disposing, cleaning, flushing, or unclogging.
- 2) Water-operated sewerage sump ejectors.
- 3) Sewer lines used for disposing of filter or softener backwash water or water from Cooling systems, or for providing a quick drain for building lines, or for flushing or blowing out obstructions in a sewer line.
- 4) Water-cooled equipment that may be sewer connected, such as heat exchangers, compressors, and air conditioning equipment.
- 5) Contaminated or sewer connected equipment, such as bedpan washers, flushometer valve toilets and urinals, autoclaves, Specimen tanks, sterilizers, pipette washers, cuspidors, aspirators, and autopsy and mortuary equipment.
- 6) Laboratory equipment that may be chemically or bacteriologically contaminated.
- 7) Plating facilities involving the use of highly toxic cyanide, heavy metals in solution, acid and caustic solutions.
- 8) Plating solution filtering equipment with pumps and circulating lines.
- 9) Industrial fluid systems and lines containing cutting and hydraulic fluids, coolants, hydrocarbon products, glycerin, paraffin, caustic solutions and acid solutions.
- 10) Shrinking, blueing, dyeing machines with direct connections to circulating systems.
- 11) Laundry machines having underrim or bottom inlets.

- 12) Dye vats in which toxic chemicals and dyes are used.
- 13) Pulp, bleaching, dyeing, and processing facilities that may be contaminated with toxic chemicals.
- 14) Automatic film processing facilities, such as machines, tanks, vats and other facilities used in processing of film.
- 15) Open reservoirs, lagoons, tanks or similar facilities.
- 16) Dehydration tanks and outlet lines from storage and dehydration tanks used for purging purposes.
- 17) Storage tanks, cooling towers and circulating systems that may be contaminated with bird dropping, algae, bacterial slime or toxic water treatment compounds.
- 18) Tanks, vats and other vessels used in painting, descaling, anodizing, cleaning, stripping, oxidizing, etching, passivating, pickling, dripping and rinsing operations and lines used for transferring fluids.
- 19) Tanks, can and bottling washing machines and lines where caustic and acid solutions, detergents and other compounds used in cleaning, sterilizing and flushing.
- 20) Steam-generating facilities and lines that may be contaminated with corrosion control chemicals or boiler compounds.
- 21) Steam-connected facilities, such as pressure cookers, autoclaves and retorts.
- 22) Washers, cookers, tanks, lines, flumes and other equipment used for storing, washing, cleaning, blanching, cooking, flushing or fuming or equipment used for the transmission of foods, fertilizers or wastes.
- 23) Fire-fighting systems that may be subject to contamination from anti-freeze solutions or other chemicals.
- 24) Hydraulically operated equipment where community water pressure is used directly and backpressure may occur.
- 25) Equipment under hydraulic test, such as tanks, valves, fittings, lines, pumps pressure cylinders or other hydraulic facilities that may force liquids back into a public water system.
- 26) Irrigation systems that may be equipped with pump, injectors, pressurized tanks or vessels.

27) Special effects equipment that injects chemicals and other materials into the water supply.

28) Mud pumps and mud tanks.

29) Oil well casings used for dampening gas pressures.

30) Oil and gas tanks in which hydraulic pressures are used to raise oil or gas levels.

31) Gas and oil lines used for testing, evacuating and slugging.

B. Cross-connection control devices will be installed on each service connection **at the point of delivery and ahead of any outlet**. If the water line is divided at the point of delivery, a device should be installed on each branch.

C. The type of cross-connection control device required will depend on the degree of hazard involved, which will be determined by the City of Augusta Utilities Department.

D. All plans for new construction will be checked prior to construction to determine the degree of hazard and the type of cross-connection control device, if any required at the point of delivery.

E. All cross-connection control devices will be readily accessible for maintenance and testing. They shall not be located where any part of the device will be submerged at any time.

F. All cross-connection control devices shall be inspected and tested by a certified cross-connection control tester at least once per year. A written report of the inspection and testing shall be submitted to the City of Augusta, Georgia Utilities Department.

SECTION 312.9.1, Georgia State Plumbing Code.

G. All cross-connection control devices shall be the same size as piping serving building or fire protection system.

SECTION 8.4.2, Hydraulic Sizing; USC's Manual for Cross-Connection Control 9th Edition
FCCHR

H. Water users are encouraged to maintain an ongoing internal cross-connection program by designating one of their employees as the contact official. Duties of the contact official follows:

(1) Inform the City of Augusta, Georgia Utilities Department of any change in water use the may affect the degree of hazard to the public water system.

(2) Perform routine maintenance of any cross-connection control devices.

(3) Oversee any in-plant piping of plumbing changes.

SECTION IV. IMPLEMENTATION and ENFORCEMENT:

1. This Policy and These procedures shall be implemented immediately for Backflow-Prevention by Containment; in conjunction with the existing Georgia State Plumbing Codes for Backflow Prevention by Cross-Connection Control on new domestic water, fire protection and irrigation system installations.

2. **Implementation** of this policy and these procedures shall also **commence immediately** on existing installations. Priority schedules shall be established and evaluations made by the City of Augusta, Georgia Utilities Department for the Consumer's Retrofit requirement at the service connection, beginning with those consumers with the greatest potential threat to the public potable water supply/system. The City of Augusta, Georgia Utilities Department however shall not be responsible for abatement of cross-connections, which may exist within a consumer's premises. As a minimum, the evaluation shall consider: the existent of cross-connections; nature of the material handled on the property; the probability of a backflow occurring; the degree of piping system complexity; and the potential system modification.

3. **Enforcement** of this policy and these procedures shall be administered by the City of Augusta, Georgia Utilities Department, utilizing it's staff in cooperation with those of the Plumbing Inspection, Environmental Health and Fire Departments of The City of Augusta, Georgia as authorized by the City of Augusta, Georgia Commission/Council.

4. The Following Enforcement actions may be taken on those users not complying with the Backflow and cross-connection control activities for these guidelines.

a. Warnings:

Any person found violating the provision for this ordinance shall be served a written notice stating the nature of the violation and shall be provided a reasonable time limit for the satisfactory correction thereof.

b. Terminate Service:

If necessary, water service can be terminated and a reconnection fee be established.

SECTION V. INSPECTION of FACILITIES:

1. The consumer, upon request, shall furnish to the City of Augusta, Georgia Utilities Department, any pertinent information regarding the consumer's water system on such premises where backflow and/or backsiphonage are deemed possible through uncontrolled plumbing connections and/or cross-connections.

2. Nothing herein shall relieve the consumer of the responsibility for conducting or causing to be conducted periodic surveys of water use practices on his premises to determine whether there are actual or potential uncontrolled cross-connections within the consumer's water system through which contaminants or pollutants could flow back into his own and/or the City of Augusta, Georgia Utilities Department potable water supply/system. If the premises is classified restricted or high security with no admittance, maximum (RPZ) protection at the service connection is required.

3. Facilities considered to pose an actual or potential contamination and /or pollution threat to the Public potable water supply/system will be subject to inspection by an authorized representative(s) of the City of Augusta, Georgia Utilities Department and when deemed necessary, in accompaniment with a representative(s) from the Plumbing Inspection, Environmental Health, and /or Fire Departments. Inspections will focus on plumbing outlets and potential contaminating or polluting substances within a facility. Inspections will be scheduled at a time mutually agreeable with the consumer's representative(s) and the City of Augusta Utilities Department representative(s). Using information gathered, the City of Augusta, Georgia Utilities Department will determine the degree of potential backflow hazard and specify the type of backflow protection required at the Consumer's Service-connection.

4. If, upon inspection, a facility is found not to be in full compliance with the plumbing code, maximum protection will be required. If the owner brings the facility up to full protection within a ninety-(90) day period, minimum protection will be allowed at the service-connection provided potential hazards within the premises are isolated.

5. After Reasonable notice to the consumer, of a violation of this policy and /or procedures existing on the premises, water service shall be discontinued, a reconnection fee charged and any other precautionary measures taken that are deemed necessary to protect the quality of the water in the City of Augusta, Georgia Utilities Department potable water supply/system. Water service shall not be restored until the danger has been eliminated in compliance with the provisions of this procedure.

6. While in the course of a routine inspection or special investigation, the inspector(s) discovers a condition of imminent or actual high hazard system contamination, the inspecting department's representative shall be authorized to **IMMEDIATELY DISCONTINUE SERVICE** to the facility. Service will not be restored until the hazardous condition has been corrected and reinspected.

7. In the event of accidental contamination or pollution of the public water supply/system, the **Consumer**, if he is so aware, shall **IMMEDIATELY NOTIFY** the City of Augusta, Georgia Utilities Department so that the appropriate measures may be taken to contain and isolate the contaminant and/or pollutant.

NOTE: COST LIABILITIES ARE THE CONSUMER'S RESPONSIBILITY, AND KNOWN FAILURE TO REPORT IS A CRIMINAL OFFENSE PUNISHABLE UNDER COUNTY, STATE AND FEDERAL LAW.

SECTION VI. WATER from OTHER SOURCES and FIRE HYDRANTS

1. When any premises is served by the City of Augusta, Georgia Utilities Department's Water System and said premises continues to have a well or any other source of water. It shall be in violation of this policy and procedures for the plumbing on said premises to be installed or so interconnected that water in the City of Augusta, Georgia's water supply/system and the private water supply can, in any way, become intermingled.

2. Upon discovery of an uncontrolled interconnection on any premises being furnished water through the City of Augusta, Georgia water system, as in item #1 above. The owner of said premises shall be notified that the interconnection must be removed and/or controlled within thirty (30) days, and that failure to remove or correct the inter-connection will result in removal of the meter. If the correction is not made within a thirty (30) day period, the meter will be removed and will not be reinstalled until the maximum-type backflow protection is installed at the service-connection, and the owner has paid for all associated costs.

3. Booster pumps installed on the service line to or within any premises, must be approved and permitted by the City of Augusta, Georgia Utilities Department. Such permitted pumps shall be equipped with a low pressure cut- off device designed to shut off the booster pump when the pressure in the suction line of the service side of the pump drops to 15 psi or below. It shall be the duty of the water consumer to maintain the low-pressure cut-off device in proper working order at all times and to certify to the City of Augusta, Georgia Utilities Department, at least once per year that the device is operable.

Note: Consumer shall assume all liabilities.

4. Tanks, tanker trucks, seed spraying trucks and other containers that will be filled with water obtained under the "**Fire Hydrant Water Use Permit**" Policy must be inspected, approved, and permitted by City of Augusta, Georgia Utilities Department for the permanent installation of an approved air gap or reduced pressure zone backflow-prevention device prior to issuance of the Fire Hydrant Water Use Permit. In addition, connecting hoses, etc., to a fire hydrant for purposing other than filling an approved tank or tank truck shall also include, as a minimum, a prior approved and inspected double check valve backflow prevention device.

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SECTION VII. SELECTION of DEVICES

The Type of Backflow Prevention Assembly is Determined by the City of Augusta using the criteria and guidelines as set forth in the **American Water Works Association's Manual 14, Second Edition, titled Recommended Practice for Backflow Prevention and Cross-Connection Control**. Assemblies shall have current endorsement from the University of Southern California; Foundation for Cross-Connection and Hydraulic Research, which incorporates standards AWWA C510-89 for double check assemblies, and AWWA C511-89 for reduced pressure zone assemblies or approved equal certifications. The City of Augusta's Backflow Prevention Manager must approve any deviation from these specifications in writing prior to the start of installation.

Requirements for the level of backflow protection are based on the hazard category of the user. Hazard categories define the level of hazard potential to the potable water system from backflow or cross-connection based on the likelihood of and type of material subject to backflow or cross-connection incident. The hazard categories are described below but are not 100% inclusive of all facilities in a respective category.

CATEGORY I –HIGH RISK

Considered to be potential source of a contaminate. Contaminates are toxic substances or those creating a health hazard due to the nature of the product, raw materials or processes in use by the customer. This Category would include such customers as **hospitals, mortuaries, doctor's offices, dentist offices, veterinary offices, multifamily housing or office buildings on a single meter greater than 2 stories, metal plating operations, chemical companies, pest control companies and other commercial/industrial customers using toxic chemicals**. Water Service connections to these customers must be protected by a **REDUCED PRESSURE ZONE (RPZ)** (up to three inch (3") Watts Model # 009 or equivalent, Four (4") and larger Watts Model #909 or equivalent) **BACKFLOW PREVENTION ASSEMBLY or an AIR GAP** to provide maximum protection. The Alternative to the single RPZ at the meter would be a Double Check Valve (DCVA) Backflow Prevention Assembly at the meter and one or more RPZ's inside the facility at strategic locations to provide isolation/containment protection for the municipal water system. If the DCV/RPZ installation configuration is used then all assemblies must be tested annually with the reports sent to the Backflow Prevention Office. See details for installation of RPZ'S Further in this document.

CATEGORY II-MEDIUM RISK

Considered to be a potential source of a pollutant. Pollutants are substances, which are objectionable in nature such as those causing discoloration, odor or taste in the water. Typical customers in this category would include **commercial businesses such as grocery stores, daycare facilities, multifamily housing on a single meter, office buildings and any premises including residences, with an auxiliary water supply**. Water Service connections in this category are required to be protected by a minimum of a **DOUBLE CHECK VALVE (DCVA)** (up to three inch (3") Watts Model # 007 or equivalent, four inch (4") and larger Watts Model #709 or equivalent) **BACKFLOW PREVENTION ASSEMBLY AT THE METER**.

CATEGORY III-LOW RISK

Those considered being least likely to be a possible source of a contaminant or pollutant. Typically this category includes single family residential customers. A **DUAL CHECK (DUCV)** ($\frac{3}{4}$ " and 1" Meters Watts Model #7 or Equivalent) **BACKFLOW PREVENTION ASSEMBLY AT THE METER** shall protect the water service connections to these customers.

1. Vacuum breakers and backflow preventers shall be selected on the basis of the impurities involved and the type cross-connection. The impurities shall be classified as Contaminants, hazardous and/or pollutants non hazardous; and the cross-connection by whether it is a pressure or non pressure as follows:

(a) CROSS-CONNECTION, NONPRESSURE TYPE: This Type of connection, when not protected by a minimum air gap, shall be protected by appropriate backflow preventer (BFP).

(b) CROSS-CONNECTION, PRESSURE TYPE: an appropriate BFP type shall protect This Type Connection only.

CAUTION: A pressure vacuum breaker shall not be used alone on a pressure-type cross-connection.

NOTE: Because an irrigation system serves an environment that is open to the atmosphere, it would not be classified as a pressure-type cross-connection. However, due to the special nature of the installation, minimum protection against backflow shall include a Pressure Vacuum Breaker or double check valve backflow preventer. If chemicals are injected into the system, minimum protection shall include a reduced pressure zone backflow preventer. Section 1105.7 Georgia State Plumbing Code.

2. Vacuum breakers shall be corrosion resistant, all other backflow-prevention devices, including accessories; components and fittings in sizes through 2 inch shall be bronze with threaded connections. Sizes above 2 inch shall be bronze; or iron that has a fused epoxy-coating inside and out, and have flanged connections.

3. Each device shall have a brass identification tag; Securely attached with corrosion resistant mechanical fasteners, and /or be embossed to notate the manufacturer's name, serial number and maximum working pressure and temperature.

4. All cross-connection control devices shall be the same size as piping serving building or fire protection system.

AWWA Manual M14; USC's Manual for Cross-Connection Control 9th Edition FCCHR

SECTION VIII. APPROVAL of DEVICES

All Backflow-prevention devices shall be approved in accordance with the applicable standards of the America Society of Sanitary Engineering (ASSE), the American National Standards Institute (ANSI), The American Water Works Association (AWWA), The University of Southern California Foundation For Cross-Connection Control and Hydraulic Research (USC) and the Georgia State Plumbing Code.

EXCEPTION: If No Standard yet exists for a particular device, or if the device is a derivative of one covered by a national standard, the City of Augusta, Georgia Utilities Department shall determine whether the device will be allowed.

SECTION IX. LOCATION and INSTALLATION of DEVICES:

1. Location of all backflow-prevention devices shall be in an area that provides a safe working environment for testing and maintenance. The area shall be readily accessible, dry, free from dirt, extreme cold, heat and/or electrical hazards.

2. Installation of all backflow-prevention devices shall be in accordance with the following procedures, the Georgia State Plumbing Code, and other Applicable codes and regulations. Installations for containment shall be by a duly licensed plumber, mechanical and/or Utility Contractor; and as approved by the City of Augusta, Georgia Utilities Department.

(a) When a dual or double check valve backflow preventer is used in the containment concept, it shall be installed at or close to the service-connection as practical, in an approved meter box, covered vault or insulated enclosure.

(b) When a reduced pressure zone backflow preventer is installed at the service-connection it shall be above ground in a structure that is protected from freezing. In lieu of the above-ground installation at the service-connection, and at the owners request, the water purveyor and the plumbing official may allow the RPZ to be installed immediately inside the building, in which case the device would remain under the jurisdiction of the City of Augusta, Georgia Utilities Department and subject to periodic inspections and testing by it's authorized representative.

NOTE: When a backflow preventer is installed in a service pipe inside a structure on any premises for the purpose of containing said premises, it shall be unlawful to tap into such service pipe between the BFP and the service-connection. Any Branch connection(s) on an existing service pipe shall be permanently disconnected or equipped with a backflow preventer(s) commensurate with the degree(s) of hazard.

SECTION 608.14), Georgia State Plumbing Code.

3. Facilities that must have a continuous uninterrupted water supply shall install backflow-prevention devices in parallel for testing and maintenance purposes. In no case shall a bypass arrangement be installed unless it is also equipped with an approved backflow-prevention device.

4. Vacuum breakers and backflow preventers equipped with atmospheric vents, or with relief openings, shall be so installed and so located as to prevent any vent or any relief opening from being submerged. They shall be installed in the position as recommended by the manufacturer, and as prescribed in the following:

(a) **VACUUM BREAKER, ATMOSPHERIC TYPE (AVB)**: This Device shall be at least 6 inches above the highest outlet or the overflow level on the nonpotable system

(b) **VACUUM BREAKER, PRESSURE TYPE (PVB)**: This device shall be installed at least 12 inches above the highest outlet or the overflow level on the non-potable system. It may be installed upstream of the last shut-off valve.

(c) **VACUUM BREAKER, HOSE TYPE (HVB)**: This Device shall be installed directly on the hose hydrant, if not an integral part of the valve. It may not be subjected to continuous pressure, static or flowing; and/or to freezing temperatures, unless it is a model that drains automatically.

CAUTION: Freezeless (frost-proof) hydrants shall include an integral vacuum breaker with the automatic drainage feature, per ASSE Standard-1019.

(d) **BACKFLOW PREVENTER, DUAL CHECK (DuC)**: This device shall not be buried in earth but may be installed below ground as in a meter box. A union shall be provided on each end and a full port ball valve shall be near the inlet and outlet sides to allow removal for maintenance. The two checking devices shall be capable of independent operation as per ASSE Standard 1024.

NOTE: When a meter or other device with a bronze strainer, integral or attached, is not immediately upstream of the dual check (DuC), a bronze strainer shall be provided between the inlet shut-off and the DuC.

(e) **BACKFLOW PREVENTER, DOUBLE CHECK VALVE (DCV)**: This assembly shall not be buried in earth but models with top and/or side access to both checks may be installed below ground as in (paragraph 2a). When below ground, a flange or swivel coupling nut shall be on the inlet and outlet sides of the checking device and all assembly bolts on bronze DCV's so installed shall be resistant to electrolysis. A Full-port ball valve in sizes through 2 inch, and a resilient-seat OS&Y gate valve in sizes above 2 inch, shall be on the inlet and outlet sides of the device. The device shall be provided with three ball valve test cocks and a fourth test cock shall be provided on the upstream side of the inlet shut-off valve. Sizes through 2 inch shall be provided with test cocks in the vertical position. All test cocks to be provided with plastic or brass, plugs or caps. No intervening connection(s) shall be between the shut-off valves and the backflow preventer.

NOTE: When a meter or other device with a bronze strainer, integral or attached, is not immediately upstream of the backflow preventer a bronze strainer shall be provided between the inlet shut-off valve and the DCV on sizes through 2 inch.

(f) **BACKFLOW PREVENTER with INTERMEDIATE ATMOSPHERIC VENT (IAV)**: This device shall not be installed below ground. Where Relief valve discharge could cause water damage, it shall be piped via an air gap, or a funnel, at the vent/relief port to a floor drain or other approved location. A resilient-seat shut-off valve and union shall be near the inlet and outlet sides of the device.

NOTE: When a meter or other device with a bronze strainer, integral or attached, is not immediately upstream of the backflow preventer a bronze strainer shall be provided between the inlet shut-off valve and the IAV on sizes through 2 inch.

(g) **BACKFLOW PREVENTER, REDUCED PRESSURE ZONE (RPZ)**: This Device shall not be installed below ground. Where relief valve discharge could cause water damage, it shall be piped via an air gap, or a funnel, at the vent/relief port to a floor drain or other approved location. Resilient-seat valves, test cocks, and strainer shall be provided as paragraph (e) above. No Intervening branch connection(s) shall be between the shut-offs and backflow preventer.

NOTE: When a reduced pressure zone device is installed in a line subject to periodic no-flow conditions, and supply pressure subject to fluctuation, an auxiliary directional check with soft disc, capable of functioning in any position the BFP may be installed in shall be provided between the inlet shut-off valve and the BFP head to lock the supply pressure in, and prevent unnecessary discharge through the vent/relief port. Make-up lines to chilled water systems and hydronic heating systems are examples of installations where a drop in supply pressure may occur during no flow conditions. When a water pressure-reducing valve is required in the same line with the RPZ device, it is usually possible to locate the reducing valve upstream of the device and to take advantage of the check valve effect of the reducing valve. In Such case, the auxiliary directional check would not be required.

(h) All cross-connection control devices shall be the same size as piping serving building or fire protection system.

AWWA Manual M14; USC's Manual for Cross-Connection Control 9th Edition FCCHR

SECTION X.

THERMAL EXPANSION

*****SPECIAL CAUTION*****

Thermal Expansion- When water is heated and stored in a consumer's water system, or branch of the system, that has been closed by the installation of backflow-prevention device, or any other checking device; an auxiliary relief valve, or expansion chamber, shall be installed to limit thermal expansion of the water being heated to not more than 80 psi static (no-flow) pressure at any fixture on the system.

Section 607.3 of the Georgia State Plumbing Code.

SECTION XI. FIRE PROTECTION SYSTEMS:

1. For the purposes of **BACKFLOW-PREVENTION By CONTAINMENT**, if the service connection to a premises; from the City of Augusta, Georgia Utilities Department's potable water supply/system, is intended to be used for fire protection service it shall be classified and/or defined as follows:

(a) **DEDICATED SERVICE-CONNECTION** - one that is designated to supply potable water for fire protection service ONLY.

(b) **COMBINATION SERVICE-CONNECTION** - one that is designated to supply potable water for **BOTH** domestic use and fire protection service.

2. To further associate the sources of water that may be used for fire protection and classes of fire protection systems, the following Georgia State Fire Code Classes shall also apply for Backflow-Prevention by Containment:

CLASS 1 - Directly supplied from Public water mains only; no pumps, tanks, or reservoirs; no physical connection from other water supplies; no antifreeze or additives of any kind; all sprinkler drains discharging to atmosphere, dry wells or other safe outlets.

CLASS 2 - Directly supplied from Public water mains, same as Class 1, except that authorization has been obtained for a booster pump to be installed in the supply line.

NOTE: Must have a special approval and be permitted by the City of Augusta, Georgia Utilities Department.

(Refer to Section V, 3)

CLASS 3 - Directly supplied from Public water mains, same as Class 1, plus one or more of the following: Elevated storage tanks or pressure tanks; fire pumps taking suction from above ground covered reservoirs or tanks. All storage facilities shall be filled from potable water supply and maintained in potable condition.

CLASS 4 - Directly Supplied from Public water mains, similar to classes 1 and 2, and with an auxiliary water supply on or available to the premises; or an auxiliary water supply located within approximately 1,700 feet of the pumper connection.

CLASS 5 - Directly supplied from Pubic water mains, and interconnected with auxiliary supplies, such as: pumps taking a suction from reservoirs exposed to contamination or rivers and ponds; driven wells; mills or other industrial water systems; or where antifreeze or additives are used.

CLASS 6 - Directly supplied from Public water mains only, with or without gravity storage or pump suction tanks, and/or interconnections with industrial systems.

3. The Following terminology and definitions for types of fire protection systems shall also be applicable;

(a) Sprinkler System - includes express riser pipes that convey water to laterals that supply sprinkler heads.

(b) Standpipe System - includes bulk riser pipes equipped with hose connections, usually at each floor and roof, for exclusive use by the fire department; plus laterals on each floor of certain facilities that supply water to hose cabinets for use by the occupants to control incipient fires until the fire department arrives.

(c) Combined Systems - includes bulk and express riser pipes that supply both sprinkler and standpipe systems.

4. Fire Systems shall be further classified and defined as:

(a) NONHAZARDOUS - containing impurities Class 3 and lower.
Also see, Terminology for Pollutant - appendix.

(b) HAZARDOUS - containing impurities Class 4 and higher.
Also see, Terminology for Containment - appendix.

5. Fire protection systems as defined by the State of Georgia Fire Code shall be contained from the City of Augusta, Georgia Utilities Department's potable water supply/system by backflow-prevention devices as indicated and that have approvals as required under Section VII of this procedure and classified or listed by the Underwriters Laboratories and Factory Mutual Insurance, as Follows:

Class 1, 2, and 3 Sprinkler systems and Nonhazardous Standpipe or Combined Systems: shall be contained by installation of a DOUBLE DETECTOR CHECK backflow preventer.

Class 4, 5 and 6 Sprinkler systems and hazardous Standpipe or combined systems: shall be contained by then installation of a REDUCED PRESSURE ZONE DETECTOR CHECK backflow preventer

Class 1,2,3,4,5 and 6 Systems with Combination Hazards: shall be contained from the public water main by procedures applicable to the component that requires the higher degree of protection.

6. All cross-connection control devices shall be the same size as piping serving building or fire protection system.

AWWA Manual M14; USC's Manual for Cross-Connection Control 9th Edition FCCHR

7. The purpose of certain checking devices used, or likely to be used, within fire protection systems is outlined below to call attention to those that are approved for use as backflow-prevention devices and those that are not.

(a) **DIRECTIONAL CHECKS** - to provide directional flow only.
NOT an approved backflow-prevention device.

(b) **ALARM CHECK** - to signal an alarm; to summon the fire department, etc., when a sprinkler head flows water; and, on wet pipe systems, to provide directional flow.
NOT an approved backflow-prevention device.

(c) **SINGLE DETECTOR CHECK** - to detect unauthorized use of water for other than fire service; to detect leaks in fire protection systems; and, with by-pass check, to provide directional flow. **NOT** an Approved Backflow-prevention device.

(d) **DOUBLE CHECK VALVE (DCV)** - to prevent backflow of polluted water into a potable water supply/system; and to provide directional flow.
APPROVED for use with full service Master or FM meters on a combination service connection only.

(e) **DOUBLE DETECTOR CHECK (DDC)** - To prevent backflow of polluted water from a fire protection system into a potable water supply/system; to detect leaks in the fire protection system; and, to provide directional flow.
APPROVED for use on a **dedicated** service connection.

(f) **REDUCED PRESSURE ZONE CHECK (RPZ)** - to prevent backflow of contaminated water into a potable water supply/system; and to provide directional flow.
APPROVED for use on a **Combination** service as in item (d).

(e) **REDUCED PRESSURE DETECTOR CHECK (RPDC)** - to prevent backflow of contaminated water from a fire protection system into a potable water supply/system; to detect unauthorized use of water; to detect leaks in the fire protection system; and, to provide directional flow.
APPROVED for use on a **Dedicated** service as in Item (e).

7. Single detector checks that are used on nonhazardous fire protection systems Class 1, 2 or 3 may not be considered as a component part of a DDC backflow preventer. Specifically, the addition of a second single check to one of these devices **may not** be substituted for a double detector check (DDC) assembly, that is approved for backflow-prevention.

8. It is intended that the approved Double Detector Check (DDC) backflow-preventer be in lieu of; not in addition to, the two checking devices already required in the supply to Class 1 and 2; or the double check valve (BFP) already required on Class 3 Nonhazardous systems, and that the approved Reduced Pressure Detector Check (RPDC) be in lieu of the RPZ already required on hazardous systems. The only additional checking device intended is a 3/4-inch Double Check Valve (DVC) or, a Reduced Pressure Zone (RPZ) in the 3/4-inch copper bypass line, in conjunction with the bronze detector meter.

9. The two shut-off valves required for periodic testing of the backflow-prevention device shall be OS&Y, FDA approved fused epoxy coated inside and out, with resilient seats and the inlet valve shall include an approved test cock on the upstream side. Underwriter's Laboratories and Factory Mutual Insurance shall list all components for fire protection service.

10. All cross-connection control devices shall be the same size as piping serving building or fire protection system.

AWWA Manual M14; USC's Manual for Cross-Connection Control 9th Edition FCCHR

SECTION XII. TESTS, MAINTENANCE and REPAIRS

1. All Backflow-prevention devices, both existing and new, and all parts thereof, shall be maintained in a safe and reliable operating condition.

2. The Consumer shall be responsible for the cost of testing, maintenance and repair of all backflow-prevention devices downstream of the service-connection within the premises and on his own private system.

3. The Consumer is responsible for backsiphoned material or contamination and/or pollution through backflow and, if contamination or pollution of the City of Augusta, Georgia Utilities Department's public potable water supply/system occurs Through an illegal cross-connection and/or an improperly installed, maintained or repaired device, or a device that has been bypassed, he shall be liable for all associated costs of clean-up required for the public potable water supply/system.

4. Tests, maintenance and repairs on BFP devices are to be made in accordance with the following schedule or more frequently where inspections indicate a need or are specified in manufacturing instructions.

(a) **FIXED AIR GAP SEPARATIONS** - shall be inspected at the time of installation and at least annually thereafter.

(b) **PRESSURE VACUUM BREAKERS** - shall be inspected and tested at the time of installation and at least yearly thereafter.

(c) **DUAL CHECK VALVES** - shall be inspected and tested at the time of installation and on a schedule as determined by the City of Augusta, Georgia Utilities Department.

(d) **DOUBLE CHECK VALVE BACKFLOW PREVENTERS** - shall be inspected and tested at the time of installation and at least annually thereafter.

(e) **REDUCED PRESSURE ZONE BACKFLOW PREVENTERS** - Shall be inspected and tested at the time of installation and at least Annually thereafter.

(f) **SYNTHETIC COMPONENTS WITHIN A DEVICE** - Shall be replaced every Five (5) years or sooner if required.

5. Test Procedures for all backflow-prevention devices shall be as outlined in the **UNIVERSITY OF SOUTHERN CALIFORNIA: FCCCHR; MANUAL OF CROSS-CONNECTION CONTROL**.

6. Testing and repairs shall be performed by a specialist who is certified and /or trained to understand the design and intended operation of the device(s) being tested, and has proven his competency to the City of Augusta, Georgia Utilities Department.

7. A test and maintenance record for each RPZ, DCV, and PVB device used in the containment concept shall be maintained by the consumer. Following each test or repair a report must be sent to the City of Augusta, Georgia Utilities Department's Backflow-Prevention Section and must include the following:

- (a) Date of Installation and location of device;
- (b) Manufacturer's name, model and serial number;
- (c) Date and time of each test or visual inspection;
- (d) Name of authorized person-performing test;
- (e) Test Results;
- (f) Description of repairs or servicing required;
- (g) Date repairs completed.

8. All backflow-prevention devices and test data shall be subject to periodic inspection by a representative of the City of Augusta, Georgia Utilities Department. If a device is found to be inoperative or malfunctioning, the consumer will be given a reasonable time to complete corrections required by the inspector or representative. With the exception of cases involving actual or imminent system contamination, the time allotted for corrections will be determined by potential hazard posed to the Public Potable Water Supply/System.

9. If the corrective measures have not been taken in the allotted time, termination of water service will be recommended. If the Director concurs, The Consumer will receive a certified letter of intent to terminate service. Termination procedures will be initiated (10) ten days after receipt. If the Consumer completes the corrections prior to the deadline, termination procedures will be halted.

SECTION XIII. EMERGENCY CONTINGENCY PLAN

When an emergency situation occurs due to a cross- connection or chemical spill, which could potentially contaminate the City of Augusta, Georgia Utilities Department's Public Water Supply/System, the following actions should be taken:

(a) The Following information should be obtained:

- (1) Location of the emergency situation.
- (2) Date and Time emergency situation occurred.
- (3) Name of person reporting.
- (4) Type of potential contaminants.
- (5) Quantity of potential contaminants.
- (6) Physical form of potential contaminants (i.e. gas, liquid, est.)

(b) The information obtained in (a) should be immediately transmitted via radio and/or telephone communication to all appropriate public service departments. Necessary telephone numbers include but are not limited to the following:

City of Augusta, Georgia Utilities Department 706-842-3060

Emergency Management 706-821-1155

Risk Management 706-821-2486

Ga. EPD 1-404-656-4300

U.S. EPA Region IV 1-404-881-4062

(c) The location of the emergency situation should be identified on a water system map and appropriate valves should be identified which may be used to isolate the problem area.

(d) A distribution system service crew and a laboratory technician should be immediately dispatched to the emergency area.

(e) The Laboratory technician will determine the limits of contamination through chlorine residual tests, odor, visual appearance and other appropriate techniques.

(f) The Distribution System Crew will isolate the contaminated area by closing the appropriate valves.

(g) The Distribution System Crew will then flush and sanitize the contaminated lines.

(h) In the event of a chemical spill, a determination must be made if the spill has occurred in reaches of the Savannah River or Augusta Canal, which are upstream of the Water Treatment Plant intake. If so, operation of the raw water pumping station should be immediately stopped.

SECTION XIV. PUBLIC AWARENESS

All Customers will be sent a brochure on Backflow or Backsiphon prevention, a public meeting will be held with the News Media and Brochures will be on the counter at the Water Revenue Collection Offices.

SECTION XV. ADDITIONAL INFORMATION

Any questions regarding this policy and /or procedures may be directed to the:



**THE CITY OF AUGUSTA, GEORGIA
UTILITIES DEPARTMENT
BACKFLOW PREVENTUION SECTION
360 Bay Street Suite 180
Augusta, Ga. 30901
Phone (706) 312-4145**

APPENDIX

TERMINOLOGY FOR BACKFLOW-PREVENTION PROGRAM

AUTHORITY - the individual, official, board, department or agency established and authorized by county, city and/or other political subdivision created by law to administer and enforce the provisions of the Plumbing Code, The Federal and State Safe Drinking Water Acts, And the Ordinances, Rules, Regulations and policies of The City of Augusta in the State of Georgia.

BACKFLOW - a reverse flow in a water system from the normal or intended direction.

BACKFLOW PREVENTER (BFP) - a device designed to prevent reverse flow in a water system. The term should normally be used where backpressure-type backflow is implied.

BACKFLOW PREVENTER, DOUBLE CHECK VALVE (DCV) - a backpressure- type backflow prevention device designed for continuous or intermittent pressure, including backpressure, where pollutants are involved.

BACKFLOW PREVENTER, DOUBLE DETECTOR CHECK (DDC) - a backpressure- type backflow prevention device designed to serve also as a detector check on fire protection systems where pollutants are involved. It Includes a line- size approved double check valve backflow preventer with a metered bypass, into which has also been incorporated an approved double check valve backflow preventer.

BACKFLOW PREVENTER, DUAL CHECK (DuC) - a backpressure-type backflow-prevention device designed especially for containing water systems to residences, mobile homes, etc. as the second line of defense, and for isolating residential lawn sprinkler systems, ect. Where pollutants only are involved.

BACKFLOW PREVENTER with INTERMEDIATE ATMOSPHERIC VENT (IAV) - a backpressure and backsiphonage-type backflow- prevention device designed to operate under continuous pressure, including backpressure, where low-degree contaminants are involved.

BACKFLOW PREVENTER, REDUCED PRESSURE ZONE (RPZ) -a backpressure and backsiphonage-type backflow prevention device designed to operate under continuous pressure, including backpressure, where contaminants are involved

BACKFLOW PREVENTER, REDUCED PRESSURE DETECTOR CHECK (RPDC) - a Backpressure and backsiphonage-type device designed to serve also as a detector check on fire protection systems where contaminants are involved. It includes a line-size reduced pressure zone backflow preventer with a metered bypass, into which has also been incorporated an approved reduced pressure zone backflow preventer.

BACKFLOW-PREVENTION - a program, an ordinance, a code, a policy; designed to discover, eliminate, to prevent; all unauthorized and uncontrolled backflow and cross-connections.

BACKFLOW-PREVENTION by CROSS-CONNECTION CONTROL - the installation of a backflow-prevention device at each cross-connection on a premises to protect both the premises and the Public Water Supply system (**The First Line of Defense**).

BACKFLOW PREVENTION by CONTAINMENT - the installation of a backflow preventer at the service-connection to the premises to protect only the Public Water Supply system. (**The Second Line of Defense**).

BACKPRESSURE - an increase in pressure in a Consumer's water system, or branch of the system, above that at the service-connection. It is generally caused by pumps, thermal expansion, or reasons other than a reduction or loss of the incoming pressure. Backpressure is generally more evident in a closed water system.

BACKSIPHONAGE - a reverse flow in a water system caused by a negative pressure in the incoming pipe, when the point of use is at atmospheric pressure. Backsiphonage is generally more evident in an open water system.

BACKSIPHONAGE PREVENTER - a device designed to prevent reverse flow in a water system. The term should be used only where a negative supply pressure is implied.

BACKFLOW-PREVENTION DEVICE SPECIALIST (CERTIFIED TESTER) - an individual who has been trained and qualified to test and repair back-flow prevention devices, and who has proven his/her competency to the City of Augusta, Georgia Utilities Department.

CLOSED WATER SYSTEM - one with checking device installed in the service pipe. A check valve, backflow preventer or pressure-reducing valve would create a closed system.

CONSUMER'S WATER SYSTEM - all potable water piping, valves fittings and appurtenances on the premise side of the service-connection.

CONTAMINANT - any substance that, if introduced into the potable water system, could create a health hazard.

CROSS-CONNECTION - a physical connection or arrangement between two otherwise separate piping systems; one of which contains potable water, the other a nonpotable fluid, or water of unknown quality, where there could be a backflow into the potable system unless it is protected by an appropriate backflow-prevention device.

CROSS-CONNECTION, NONPRESSURE TYPE - a low-inlet installation where a potable water pipe is connected or extended below the overflow rim of a receptacle, or an environment, that contains a nonpotable fluid, and is at atmospheric pressure.

CROSS-CONNECTION, PRESSURE TYPE - an installation where a potable water pipe is connected to a closed vessel, or piping system, that contains nonpotable fluid, and is above atmospheric pressure.

DIRECTOR - The Director of the City of Augusta Utilities Department, in the State of Georgia.

HYDRAULIC SIZING: All cross-connection control devices shall be the same size as piping serving building or fire protection system.

HAZARD, PLUMBING - a danger or potential danger to health, due to contaminants entering the potable water system via uncontrolled cross-connection, which can range in severity from mildly toxic too lethal.

INSPECTOR- an individual qualified in a vocation and authorized to make inspections, interpret codes, regulations and procedures.

OPEN WATER SYSTEM - one with no checking device installed in the service pipe. Water from the consumer's system is free to backflow into the main, for whatever reason.

POLLUTANT - any substance that, if introduced into the potable water system, could be objectionable but could not create a health hazard.

POTABLE WATER - any water that, according to recognized standards, is safe for human consumption.

PUBLIC WATER SUPPLY/SYSTEM - a water system (including but not limited to supply, treatment, transmission and distribution facilities and appurtenances) operated as a Public Utility that supplies potable water to the service-connection of the Consumer's water system. Herein defined, as the Augusta Richmond County Utilities Department.

REPRESENTATIVE - a person authorized to represent the Director of the City of Augusta, Georgia Utilities Department.

SERVICE-CONNECTION - the point of delivery of water to premises: the normal location of the meter. It is the end of the water purveyor's jurisdiction and the beginning of the Plumbing Official's and the Consumer's, and defined as follows:

DEDICATED - a single service connection that is designated for one use only; (i.e., domestic, fire protection or irrigation.)

COMBINATION - A single service connection that is designated for more than one use; (i.e., domestic and fire protection).

VACUUM BREAKER (VB) - a backsiphonage-prevention device that introduces air into the potable water system when the system pressure approaches zero. It is designed for use where the receptacle or environment being served is subject to atmospheric pressure only.

VACUUM BREAKER, ATMOSPHERIC TYPE (AVB) - a backsiphonage- prevention device designed for use under flow conditions only, not to exceed 12 consecutive hours, and where it will be subject to no static pressure, and no backpressure.

VACUUM BREAKER, PRESSURE TYPE (PVB) - a backsiphonage-prevention device designed to operate under continuous pressure; static or flowing, but no backpressure.

VACUUM BREAKER, HOSE TYPE (HVB) - a backsiphonage-prevention device designed for hose connections only, but not for continuous pressure, static or flowing.

VACUUM RELIEF VALVE - a device designed to limit the degree of vacuum in a vessel or pipe, but not for cross- connection control.

References:

CROSS-CONNECTION CONTROL MANUAL, 1989,
U. S. ENVIRONMENTAL AGENCY

CROSS CONNECTION CONTROL MANUAL,EPA-430/9-73-002, 1975
U. S. ENVIROMENTAL AGENCY

RULES FOR SAFE DRINKING WATER, SECTION: 391-3-5-13;
GEORGIA DEPARTMENT OF NATURAL RESOURCES

PRINCIPLE NO. 5 (BACKFLOW PREVENTION), and SECTION: 1105:
THE GEORGIA STATE PLUMBING CODE, 1982

BACK-FLOW-PREVENTION and CROSS CONNECTION CONTROL MANUAL M-14,
AMERICAN WATER WORKS ASSOCIATION, 1974

CROSS CONNECTION CONTROL HANDBOOK, 1988
FEBCO VALVES

MANUAL OF CROSS CONNECTION CONTROL, 9TH EDITION 1993;
FCCCHR, UNVERSITY OF SOUTHERN CALIFORNIA

A GUIDE TO SELECTION AND INSTALLATION OF BACKFLOW DEVICES,
8TH EDITION #F-SI-BPD
RICHARD CLARY; REGIONAL DIRECTOR; AMER. BACKFLOW PREV. ASSOC.

RICHMOND COUNTY CODE OF ORDINANCE NO. 84-22
RICHMOND COUNTY CROSS CONNECTION CONTOL PROGRAM, OCTOBER 1984
RICHMOND COUNTY, GEORGIA

CITY OF AUGUSTA CODE OF ORDINANCE, SEC 19-70
CITY OF AUGUSTA PROGRAMS FOR WATER CONSERVATION AND CROSS
CONNECTION CONTROL SEPT. 1983
AUGUSTA, GEORGIA

AUGUSTA RICHMOND COUNTY CODE OF ORDINANCE, TITLE 5, SECTION 4
BACKFLOW PREVENTION, DECEMBER 7, 1999.

Prepared by
Leroy Anderson, Resident Engineer II, Backflow Manager
Backflow-Prevention Section
Augusta Utilities Department
Augusta, Georgia
1999

The City of Augusta, Georgia
Utilities Department
2760 Peach Orchard Road Augusta, Ga. 30906
Cross-Connection Program
Standard Application

- 1) Company Name: _____
2) Mailing Address: _____
3) Address of Premises: _____

- 4) Contact Official:
Name: _____
Title: _____
Phone: _____

- 5) Give a brief Description of your manufacturing or service activity on the premises:

6) What are the principle raw materials and /or chemicals used?

7) What are your principle products or services?

8) Is water used within the premises for any of the following activities?

Domestic _____
Cooling Water _____
Boiler or Heating _____
Process Water _____
Cleanup or Washdown _____
Fire Protection _____
Other _____

- 9) List all service connections to the public water supply system, including pipe size and meter size. Attach and refer to a sketch of your water connection system.

10) Are any Cross-connection control devices used to protect the public water supply system from accidental contamination by backflow or back-siphonage? If so, describe and indicate on your sketch a location where the device can be readily monitored.

The information contained in this application is familiar to me and to the best of my knowledge and belief, such information is true, complete and accurate.

Signature of Official: _____
Name: _____
Title: _____ Date: _____

The City of Augusta, Georgia
Utilities Department
2760 Peach Orchard Road Augusta, Ga. 30906
Cross-Connection Program
Requirements for Connection to Public Water System

In accordance with the standard application for Cross-Connection Control filed by _____ on _____, 19__, It has been determined that the following Cross-Connection Control Procedures and /or Devices will be required:

_____ Reduced pressure principal Backflow preventer

_____ Double Check Valve Assembly

_____ Vacuum Breaker

_____ Annual Inspection

_____ Internal Monitoring

_____ Other

Special Instructions:

The Contact Official for your company has been designated to be _____. It is the responsibility of the contact official to notify the City of Augusta, Georgia Utilities Department of any change of activity, which may increase the degree of protection, required for Cross-Connection Control. The contact official is also responsible for daily maintenance and annual inspection (if required) of the Cross-Connection Device.

Signature of Contact Official: _____

Name: _____

Title: _____ Date: _____

The City of Augusta, Georgia
Utilities Department
2760 Peach Orchard Road Augusta, Ga. 30906
Cross-Connection Program
Annual Inspection Report

Company Name: _____

Mailing Address: _____

Address of Premises: _____

Contact Official:

Name: _____

Title: _____

Phone: _____

Type of Cross-Connection Control Device(s):

Location of cross-connection Control Device(s):

Date of Inspection _____, 19__.

Please verify all of the above general information listed above. the referenced cross-connection control device(s) must be inspected and the following report filed no later than _____, 19__.

Inspection Report

1) Have water use activities of the premises changed in such way as to require additional cross-connection controls?

2) Describe the techniques and methods used for testing and inspecting the cross-connection control device.

3) Summarize the results of the inspection and list any corrective actions needed.

4) This inspection was performed on _____, 19__.

5) This inspection was performed by _____.

The information contained in this application is familiar to me and to the best of my knowledge and belief, such information is true, complete and accurate.

Signature of Contact Official: _____

Name: _____ Title: _____ Date: _____

Signature of Inspector: _____ Title _____ Date: _____

ORDINANCE NO. 6223

AN ORDINANCE TO AMEND THE AUGUSTA-RICHMOND COUNTY CODE, TITLE 5, ARTICLE 4 BY DELETING SAME IN ITS ENTIRETY AND ENACTING A NEW ARTICLE 4 FOR BACKFLOW PREVENTION BY REGULATING THE CONSTRUCTION AND MAINTENANCE OF CROSS-CONNECTIONS, AUXILIARY INTAKES, BY-PASSES AND INTER-CONNECTIONS AFFECTING AUGUSTA, GEORGIA'S POTABLE WATER SUPPLY; REGULATING THE USE OF AND METHOD OF HANDLING WATER FROM PRIVATE SOURCES; REQUIRING THE CORRECTION OF UNAPPROVED OR UNAUTHORIZED INSTALLATIONS; TO PROVIDE A PENALTY FOR THE VIOLATION OF THIS ORDINANCE; TO REPEAL CONFLICTING ORDINANCES; AND FOR OTHER PURPOSES.

BE IT ORDAINED BY THE AUGUSTA-RICHMOND COUNTY COMMISSION AND IT IS HEREBY ORDAINED BY AUTHORITY OF SAME AS FOLLOWS:

Section 1. The Augusta-Richmond County Code, Title 5, Article 4 is hereby amended by deleting said Article 4 in its entirety and substituting in lieu thereof a new Article 4 to read as follows:

ARTICLE 4

BACKFLOW PREVENTION AND CROSS-CONNECTIONS

§ 5-2-72. DEFINITIONS.

For the purpose of this Article, the following terms, phrases, words and their derivations shall have the meanings given herein unless more specifically defined within other sections of this Article. When not inconsistent with the content, words used in the present tense include the future tense, and words in the single number include the plural number. The word "shall" is always mandatory and not discretionary.

(a) "Augusta" is a political subdivision of the State of Georgia that includes all of Richmond County.

(b) "Public Water Supply" means the waterworks system furnishing water to Augusta for general use, excluding the area furnished water by the City of Hephzibah, and which supply is recognized as the public water supply by the Georgia Department of Natural Resources/Environmental Protection Division.

(c) "Cross-Connection" means any physical connection whereby the public water supply is connected with any other water supply, whether public or private, either inside or outside of any building or buildings, in such a manner that a flow of water into the public water supply is possible either through the manipulation of valves or because of ineffective check or back-pressure valves, or because of any other arrangement.

(d) "Auxiliary Intake" means any piping connection or other device whereby water may be secured from a source other than that normally used.

(e) "By-pass" means any system of piping or other arrangement whereby the water may be diverted around any part or portion of a water purification plant or public water distribution system.

(f) "Inter-connection" means any system of piping or arrangement whereby the public water supply is connected directly with a sewer, drain, conduit, pool, storage reservoir or other device which does or may contain sewage or other waste or liquid which is capable of importing contamination to the public water supply.

(g) "Person" means any and all persons, natural or artificial, including any individual, firm or association, and any municipal or private corporation organized or existing under the laws of this or any other state or country.

§ 5-2-73. PURPOSE.

The Augusta Utilities Department's Public Water Supply shall comply with Chapter 391-3-5-.13 of the Georgia Rules for Safe Drinking Water and PL 933-523 of the Federal Safe Drinking Water Act, Legally adopted by this Code, and which pertains to cross-connections, establishes an effective Policy and Procedures for Backflow Prevention By Containment Program to control these undesirable water uses.

§ 5-2-74. GENERAL PROVISIONS.

(a) No person shall cause a cross-connection, auxiliary intake, by-pass or inter-connection to be made or allow one to exist for any purpose whatsoever.

(b) Any person whose premises are supplied with water from the Augusta Public Water Supply, and who has also on the same premises a separate water supply or stores water in an uncovered or unsanitary storage reservoir from which the water stored therein is circulated through a piping system, shall file with the Director of the Augusta Utilities Department a statement attesting to the non-existence of unapproved or unauthorized cross-connections, auxiliary intakes, by-passes or interconnections. Such Statement shall also contain an agreement that no cross-connections, auxiliary intakes, bypass or interconnection will be permitted on the premises.

§ 5-2-75. INSPECTION.

(a) It shall be the duty of the Augusta Utilities Department to cause inspections to be made of all properties served by the public water supply where cross-connections with the public water supply are deemed possible. The frequency of inspections and reinspections based on potential health hazards involved, and shall be established by the Director of the Augusta Utilities Department.

(b) The Director of the Augusta Utilities Department or his authorized representative shall have the right to enter, at any reasonable time, any property served by a connection in the Augusta Public Water Supply for the purpose of inspecting the piping system or systems thereof for cross-connections. On request, the owner or occupant of any property so served shall furnish to the inspection agency any pertinent information regarding the piping system or refusal of access, when requested, shall be deemed evidence of the presence of cross-connections.

§ 5-2-76. OTHER INSTANCES WHERE PROTECTIVE DEVICES REQUIRED.

(a) Where the nature of use of the water supplied a premises by the Augusta Utilities Department's Public Water Supply is such that it is deemed:

- (1) impractical to provide an acceptable air gap separation; or
- (2) that the owner and/or occupant of the premises cannot or is not willing to demonstrate to the official in charge of the system, or his designated representative, that the water use and protective features of the plumbing are such

as to propose no threat to the safety or potability of the water supply; or

(3) that the nature and mode of operation within the premises are such that frequent alterations are made to the plumbing; or

(4) there is a likelihood that protective measures may be subverted, altered, or disconnected;

The Director of the Augusta Utilities Department, or his designated representative, shall require the use of an approved protective device on the service line serving the premises to assure that any contamination that may originate in the customer's premises is contained therein. The protective devices shall be a shall be suitable for the service being protected and shall be of a type back-flow preventer approved by the Director of the Augusta Utilities Department as to the manufacture, model and size. The method of installation of the backflow protective devices shall be approved by the Director of the Augusta Utilities Department prior to installation and shall comply with the criteria set forth by the Augusta Utilities Department.

(b) The installation shall be at the expense of the owner or occupant of the premises.

(c) The Augusta Utilities Department shall have the right to inspect and test the device or devices on an annual basis or whenever deemed necessary by the Director of the Augusta Utilities Department, or his designated representative.

(d) Water Service shall not be interrupted to test the device without the knowledge of the occupant of the premises.

(e) When the use of water is critical to the continuance of normal

operations or protection of life, property, or equipment, duplicate units shall be provided to avoid the necessity of discontinuing water service to test or repair the protective device or devices. Where only one unit is installed and the continuance is critical, the Director of the Augusta Utilities Department shall notify in writing, the occupant of the premises of the plans to discontinue water service and arrange for a mutually acceptable time to test and/or repair the device. The water system shall require the occupant of the premises to make all repairs indicated promptly, and the expense of such repairs shall be borne by the owner or occupant of the premises. These repairs shall be made by qualified personnel acceptable to the Director of the Augusta Utilities Department.

§ 5-2-77. SIGN REQUIREMENTS.

(a) The potable water supply made available on the properties served by the Augusta Utilities Department's Public Water Supply shall be protected from possible contamination as specified herein.

(b) Any water outlet which could be used for potable or domestic purposes and which is not supplied by the potable system must be labeled in a conspicuous manner as:

WATER UNSAFE
FOR DRINKING

(c) Minimum acceptable sign shall have black letters one-inch high located on a red background.

§ 5-2-78. TIMEFRAME FOR COMPLIANCE.

Any person who now has cross-connections, auxiliary intakes, by-passes, or interconnections in violation of this policy shall be allowed a reasonable time within which to comply with the provisions of this policy. After a thorough investigation of the existing conditions and a appraisal of the time required to complete the work the amount of time shall be designated by the Director of the Augusta Utilities Department.

§ 5-2-79. PENALTY.

Whenever any person neglects or refuses to comply with any of the provisions of this Article the Director of the Augusta Utilities Department shall discontinue the public water supply service at the premises upon which there is found to be a cross-connection, auxiliary intake, by-pass or inter-connection, and service shall not be restored until such cross-connection, auxiliary intake, by-pass, or inter-connection has been discontinued.

§ 5-2-80. RIGHT OF DIRECTOR TO SEVER CROSS-CONNECTION.

Whenever the Augusta water supply is involved, and in the opinion of the Director of the Augusta Utility Department any cross-connection endangers or

potentially endangers the Augusta water supply, then the Director shall have the right to sever the cross-connection by shutting off the Augusta water supply.

§ 5-2-81. SEVERABILITY.

If any section, subsection, sentence, clause, phrase or portion of this Article is for any reason held invalid, unenforceable or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, independent, and severable provision and such holding shall not affect the validity of the remaining portions herein.

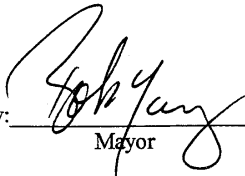
§ 5-2-82. PENALTY FOR VIOLATION OF ARTICLE.

Any person or persons failing to comply with the lawful provisions of this Article or any act prohibited hereby or failing to do any act mandated hereby shall be guilty of an offense and, upon trial as a misdemeanor and conviction, shall be subject to the penalties provided in § 1-6-1.

Section 2. That all ordinances and parts of ordinances in conflict with this ordinance shall be hereby repealed; and this ordinance shall take effect from and after its passage.

Section 3. This ordinance shall become effective upon its adoption.

Duly adopted this 7th day of December 1999.

By: 
Mayor

John Yang
Cur

Attest:

By: 
Clerk

1st Reading: Nov. 16, 1999

2nd Reading: 12-7-99

AUGUSTA UTILITIES DEPARTMENT



ENGINEERING DIVISION

BACKFLOW PREVENTION SECTION

SPECIFICATIONS AND DETAILS FOR INSTALLATION OF BACKFLOW ASSEMBLIES

(JANUARY 2008)

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INTRODUCTION

The City of Augusta, Georgia's Utilities Department by order of the Georgia Environmental Protection Division is requiring all commercial/industrial facilities to install backflow prevention assemblies on the potable and fire service lines where city water is supplied to their facilities. All facilities must have an approved backflow prevention device installed by September 1, 2010 or be subject to enforcement action which may include termination of water service if compliance is not met. There are currently more than 6000 commercial/industrial accounts supplied by the city, many of whom may have backflow assemblies installed. However, there are numerous commercial/industrial facilities that do not have these devices in place.

The Backflow Prevention Section has compiled the following information in an effort to aid companies and individuals involved in the installation of new and upgraded backflow prevention assemblies. This information applies only to facilities connected to the City of Augusta's potable water system throughout Augusta-Richmond County, Georgia.

The Information is broken down into easily identifiable sections where general and specific installation information for various installation situations can quickly be referenced. If followed, the material provided should significantly increase installations that are passed during the first inspection by the Backflow Program Manager. This should reduce the need for reworking new and upgraded installations, Thus saving the installer time and the need for return trips to the job.

The information is to be used as a guide for general installations that encounter no unusual circumstances. When unusual situations are encountered please do not hesitate to contact the Resident Engineer II and review the situation with him. This will save you time and a possible Failed inspection.

Please note that this information is subject to change. If at any time there are questions concerning the information provided or the installation of the backflow prevention assemblies please call The Office of Engineering Services/Backflow Prevention Section at 706-312-4145 for assistance. It is the City's hope that this information will be helpful to those involved with the installation of the backflow prevention assemblies.



**Utilities Department
Engineering Division
Backflow Prevention Section
360 Bay Street Suite 180
Augusta, Ga. 30901**

STANDARD SPECIFICATIONS AND DETAILS FOR THE INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES

General Information

The Type of Backflow Prevention Assembly is Determined by the City of Augusta using the criteria and guidelines as set forth in the **American Water Works Association's Manual 14, Second Edition, titled Recommended Practice for Backflow Prevention and Cross-Connection Control**. Assemblies shall have current endorsement from the University of Southern California; Foundation for Cross-Connection and Hydraulic Research, which incorporates standards AWWA C510-89 for double check assemblies, and AWWA C511-89 for reduced pressure zone assemblies or approved equal certifications. The City of Augusta's Backflow Prevention Manager must approve any deviation from these specifications in writing prior to the start of installation.

Requirements for the level of backflow protection are based on the hazard category of the user. Hazard categories define the level of hazard potential to the potable water system from backflow or cross-connection based on the likelihood of and type of material subject to backflow or cross-connection incident. The hazard categories are described below but are not 100% inclusive of all facilities in a respective category.

CATEGORY I –HIGH RISK

Considered to be potential source of a contaminate. Contaminates are toxic substances or those creating a health hazard due to the nature of the product, raw materials or processes in use by the customer. This Category would include such customers as **hospitals, mortuaries, doctor's offices, dentist offices, veterinary offices, multifamily housing or office buildings on a single meter greater than 2 stories, metal plating operations, chemical companies, pest control**

companies and other commercial/industrial customers using toxic chemicals. Water Service connections to these customers must be protected by a **REDUCED PRESSURE ZONE (RPZ)** (up to three inch (3'') Watts Model # 009 or equivalent, Four (4'') and larger Watts Model #909 or equivalent) **BACKFLOW PREVENTION ASSEMBLY or an AIR GAP** to provide maximum protection. The Alternative to the single RPZ at the meter would be a Double Check Valve (DCVA) Backflow Prevention Assembly at the meter and one or more RPZ's inside the facility at strategic locations to provide isolation/containment protection for the municipal water system. If the DCV/RPZ installation configuration is used then all assemblies must be tested annually with the reports sent to the Backflow Prevention Office. See details for installation of RPZ'S Further in this document.

CATEGORY II-MEDIUM RISK

Considered to be a potential source of a pollutant. Pollutants are substances, which are objectionable in nature such as those causing discoloration, odor or taste in the water. Typical customers in this category would include **commercial businesses such as grocery stores, daycare facilities, multifamily housing on a single meter, office buildings and any premises including residences, with an auxiliary water supply.** Water Service connections in this category are required to be protected by a minimum of a **DOUBLE CHECK VALVE (DCVA)** (up to three inch (3'') Watts Model # 007 or equivalent, four inch (4'') and larger Watts Model #709 or equivalent) **BACKFLOW PREVENTION ASSEMBLY AT THE METER.**

CATEGORY III-LOW RISK

Those considered being least likely to be a possible source of a contaminant or pollutant. Typically this category includes single family residential customers. **A DUAL CHECK (DUCV) (3/4'' and 1'' Meters Watts Model #7 or Equivalent) BACKFLOW PREVENTION ASSEMBLY AT THE METER** shall protect the water service connections to these customers.

GENERAL INSTALLATION REQUIREMENTS

- 1) All Assemblies are to be installed as close as possible to the water meter. The City of Augusta's Utilities Department Backflow Program Manager must approve any variance from this location prior to installation. Failure to obtain a variance prior to installation may cause the device to be relocated.
- 2) Due to the location of the water meter at existing facilities it may not be practical to install a backflow assembly device at the water meter. In these instances the Backflow Program Manager must be contacted to visually inspect and determine the most appropriate location for the backflow device. Once location is determined a written variance will be prepared for the occupant/owner of the facility. Installation prior to inspection may not be acceptable and the backflow device may be required to be relocated.
- 3) Backflow assemblies shall include a full port ball valve on the inlet and outlet sides. Devices larger than 2 inches may have gate valves. Devices shall be fitted with three ball valve test

cocks and a fourth ball valve test cock on the upstream side of the inlet shutoff valve. All Test Cocks shall be fitted with brass, stainless steel or plastic plugs and/or caps to keep the test cocks clean and free of debris.

- 4) No galvanized nipples or fittings can be installed directly into/onto an assembly, unless a dielectric or insulating fitting is used to separate the dissimilar metals.
- 5) All fire systems are required to have **DOUBLE DETECTOR CHECK (DDCA) BACKFLOW PREVENTION ASSEMBLIES** as shown in accompanying details.
- 6) Reduced pressure zone (RPZ) devices installed outside must have a minimum of twelve inches (12") clearance from the bottom of the device to the ground and in a freeze proof box that will allow for drainage when the device discharges. Additional notes on RPZ installations are in the RPZ Installation Details and Specifications Section of this document.
- 7) Any Device installed inside, **RPZ or Double Check** must be installed per the manufactures' specifications and be easily accessible for inspection, testing and repair.
- 8) All cross-connection control devices shall be the same size as piping serving building or fire protection system.
AWWA Manual M14; USC's Manual for Cross-Connection Control 9th Edition FCCHR
- 9) A certified Backflow Assembly Tester Approved by the City of Augusta must test all assemblies. A current tester list can be obtained from the Augusta Utilities Department Backflow Prevention Section Office.
- 10) Initial testing must be done within **five (5) working days** of the installation and reports forwarded to the City of Augusta Utilities Department Backflow Prevention Section within **ten (10) Working days**. Assemblies are to tested annually thereafter and reports forwarded to the City within **Ten (10) Working Days** of the test. Failure to test and forward the report within the allotted time may result in removal of the tester's name from the approved list for a minimum of three (3) months. Companies and testers who continually fail to supply test reports within the allotted time may be removed from the approved list for a longer period at the desecration of the Backflow Program Manager.

INSTALLATION SPECIFICATIONS

3" AND SMALLER DOUBLE CHECK VALVE ASSEMBLY INGROUND ENCLOSURES

- 1) See the attached box detail sheet for example of the acceptable box used in non-traffic areas. This box or one of near equal dimensions may be used. Installations in concrete or asphalt shall have drop in covers. Installations in grassy areas may have either drop-in covers or covers that overlap the top of the box. If the box is to be set in concrete, asphalt or an area subject to other than foot traffic, the box and cover must be designed for such and installation.
- 2) Top of box shall be at grade or above to prevent flooding of the installation.

- 3) The entire box bottom perimeter shall be supported on compacted or undisturbed soil, poured concrete base, complete courses of brick or block properly mortared in place, or tightly packed clean gravel (#57 Stone or larger) to prevent box from settling. If the service line is at a depth that warrants an adjustment of the box elevation then complete courses of bricks or blocks, properly mortared in place, may be used to support the entire box bottom, or a commercial box riser may be used to bring the box top level up to grade or above.
- 4) The box shall not rest directly on the water line. Pipe cutout holes must be larger than the water line and sealed with expansion foam or silicone chalk to prevent dirt and water from entering the box.
- 5) The box must have clean, compacted gravel (#57 stone or larger) at least six inches (6") deep covering the entire bottom to allow for good drainage. No mud, dirt, debris, etc. shall be left in the box.
- 6) The backflow assembly must:
 - ✓ Be clean
 - ✓ Be centered in the box if installation will permit
 - ✓ Be positioned with test cocks in a vertical position if possible
 - ✓ Have no galvanized fittings attached directly into/onto the device
 - ✓ Have test cocks fitted with brass, stainless or plastic plugs
 - ✓ Have the lowest point of the assembly a minimum of 6" from the gravel (#57 stone or larger)
 - ✓ Have top of the device between 8" and 18" from bottom of the cover
 - ✓ Have ball valves positioned so they can be opened fully from top or side
 - ✓ Be sized to the water meter, i.e. 1" meter will require 1" backflow device
 - ✓ Have attached to, or cast in the body, manufacturer's name, model and serial number, etc.
 - ✓ Be tested and pass within **five (5) working days** following installation and test report forwarded to the backflow prevention section within **ten (10) working days**.

3" AND LARGER DOUBLE CHECK VALVE ASSEMBLIES IN VAULTS

- 1) See the attached vault detail sheets for proper installation of all 4" and larger assemblies in precast, reinforced concrete vaults. Details cover domestic and fire service application. A complete package precast vault per detail may be used.
- 2) All assemblies must be supported with commercial pipe supports at locations shown on the attached vault detail sheets. In open bottom vaults the pipe supports must be concrete cap blocks or poured concrete footing placed on compacted soil or directly on top of compacted clean gravel (#57 stone or larger). Concrete Blocks, bricks, pieces of wood, etc. are not acceptable as pipe supports and shimming is not allowed.
- 3) There must be a minimum of eight inches (8") Clearance between the bottom of the device and the gravel or vault bottom.

- 4) Open bottom vaults must have clean, compacted gravel (#57 stone or larger) at least twelve inches (12") deep covering the entire bottom to allow for good drainage, with no trash, mud or other debris left in the vault.
- 5) Inside of the vault must be free of dirt, mud, standing water and any other debris. Steps are also to be free of mud and dirt.
- 6) The ends of the vault where the pipe enters and exits must be concrete in or properly blocked in with mortared brick or blocks.
- 7) Minimum size three foot (3') X three foot (3') aluminum hatch lid to be offset to step side of vault and centered over steps.
- 8) Steps are to be on twelve inches (12") Centers maximum and centered in the hatch open.
- 9) In fire service vaults the detector check must be on the opposite side of the vault from the steps.
- 10) Solid bottom vaults shall be set in such a manner to allow for complete drainage through drainage sump openings that are provided.
- 11) The backflow assembly must
 - ✓ Be clean
 - ✓ Be fitted with gate valves
 - ✓ Be located in vault per details
 - ✓ Be positioned with test cocks in a vertical position if possible
 - ✓ Have no galvanized fittings attached directly into/onto the device
 - ✓ Have test cocks fitted with brass, stainless or plastic plugs
 - ✓ Have the lowest point of the assembly a minimum of eight inches (8") from the gravel (#57 Stone or larger)
 - ✓ Have top of the device between eight inches (8") and eighteen inches (18") from bottom of the cover
 - ✓ Be sized to the water meter, i.e. 4" meter will require 4" backflow device
 - ✓ Have attached to, or cast in the body, manufactures name, model and serial number, etc.
 - ✓ Be tested and pass within **five 5 working days** following installation and test report forwarded to the backflow prevention section within **ten (10) working days**.

REDUCED PRESSURE ZONE ASSEMBLY INSTALLATIONS—ALL SIZES

- 1) All Reduced Pressure Zone Assemblies (RPZ's) are to be installed above ground or inside the facility to protect from freezing. Exposure to freezing will result in improper functioning of an RPZ and may cause permanent damage to the assembly.
- 2) **Southern Building Code Section 304.4 (1994)-Freezing:** A water, soil or waste pipe shall not be installed or permitted outside of a building or concealed in outside walls or any place where they may be subject to freezing temperatures, unless adequate provision is made to protect them from freezing.

- 3) **Reduced** Pressure Zone Assemblies that are installed inside a facility are required to have an air gap and discharge line installed to catch water that the device will periodically discharge.
- 4) **Facilities** requiring an RPZ may be allowed to install it inside provide that either:
 - ✓ There are no other connections between the meter and the building and it is unlikely one would be installed in the future or,
 - ✓ A double check is installed at the meter.
- 5) All above ground enclosures for RPZ's are to be sized to the RPZ size or larger per manufacturer's specifications. E.G. A two-inch RPZ must go in an enclosure designed for a two-inch or larger RPZ.
- 6) The base on which an above ground enclosure sits may be a complete slab or perimeter footer. If a perimeter footer is used than clean gravel (#57 stone or larger) covering the entire bottom of the enclosure must be a full twelve inches (12") deep. See detail sheet
- 7) All enclosures are to be designed with drainage openings large enough to accommodate a full discharge of the assembly.
- 8) The reduced pressure zone backflow assembly must:
 - ✓ Be clean
 - ✓ Be centered in the box if installation will permit
 - ✓ Be positioned with test cocks in a vertical position if possible
 - ✓ Have no galvanized fittings attached directly into/onto the device
 - ✓ Have test cocks fitted with brass, stainless or plastic plugs
 - ✓ Have the lowest point of the assembly a minimum of twelve inches (12") from the gravel (#57 stone or larger)
 - ✓ Have ball valves positioned so they can be opened fully from top or side
 - ✓ Be sized to the water meter, i.e. a one inch (1") meter will require a one inch (1") backflow device
 - ✓ Have attached to, or cast in the body, manufactures name, model and serial number, etc.
 - ✓ Be tested and pass within **five (5) working days** following installation and test report forwarded to the backflow prevention section within **ten (10) working days**.

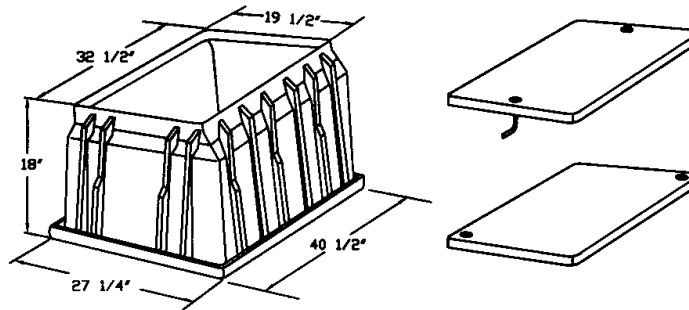
NOTICE TO ALL CUSTOMERS AND INSTALLERS

- ❖ Ownership of the backflow assembly and responsibility for testing, maintenance and proper operation are that of the water consumer.
- ❖ The City of Augusta, Georgia neither accepts responsibility or liability for the backflow assembly being tested, maintained or operating properly.
- ❖ Backflow assemblies are to be installed by a licensed plumber, fire protection installer, Utility or Mechanical Contractor and repairs made by a licensed Master Plumber.
- ❖ Installation of a Backflow Prevention assembly on a service line creates a closed system. Provisions should be made for thermal expansion in the customer's system. (Georgia State

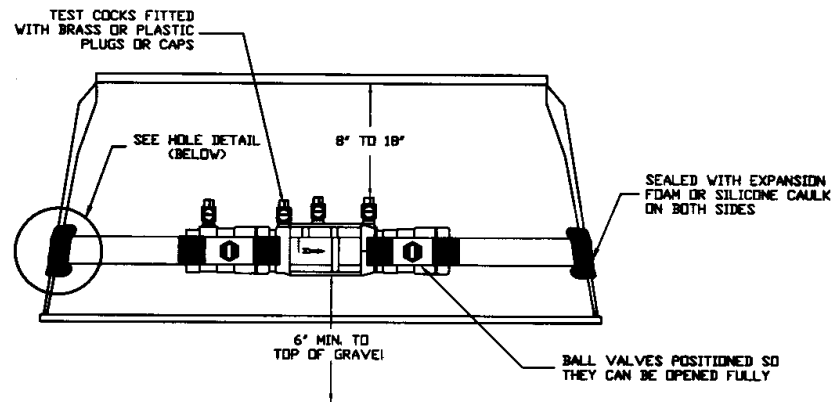
Plumbing Code Section 607.3) **Thermal Expansion devices will be installed and a notation of thermal device location is to be made on test sheet.**

If you need more information, please contact the City of Augusta, Georgia's Utilities Department Backflow Prevention Section at (706) 312-4145.

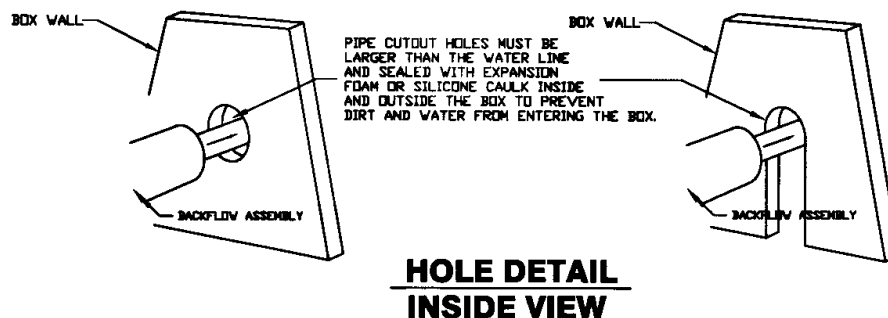
DOUBLE CHECK ASSEMBLY INSTALLATION



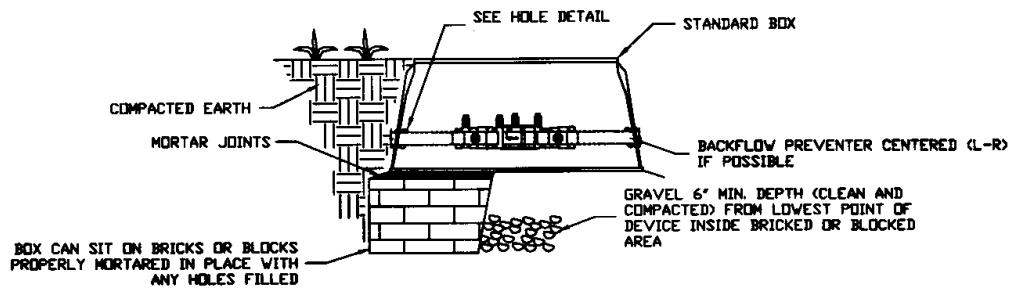
CARSON IND. SERIES 1730D BOX W/COVER (OR EQUIVALENT) USED FOR ALL ASSEMBLIES 2" AND SMALLER



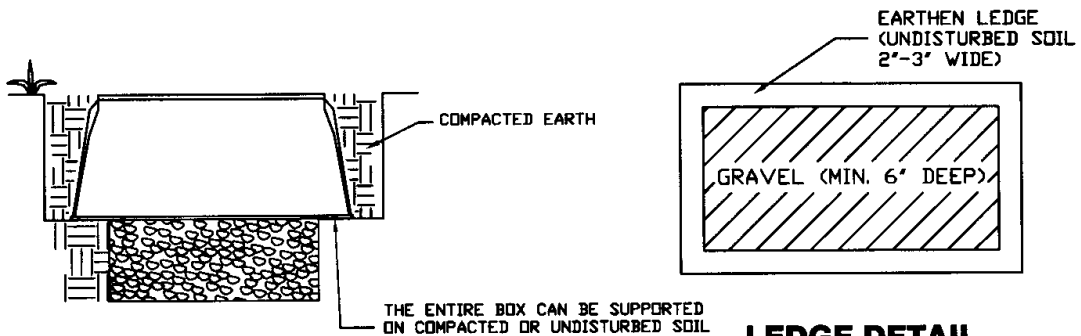
DOUBLECHECK ASSEMBLY DETAIL



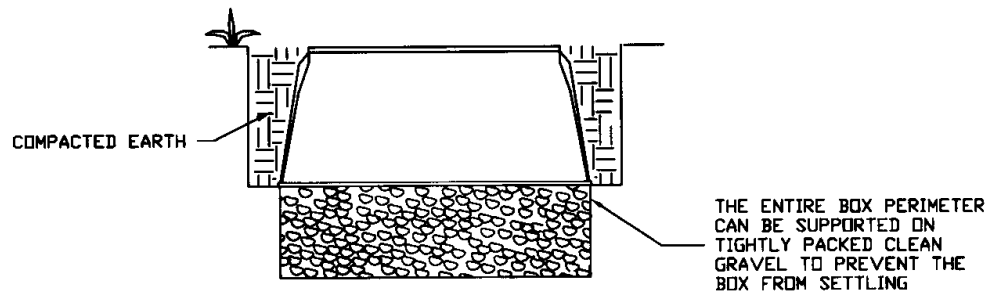
FOUNDATION VARIATIONS



INSTALLATION #1



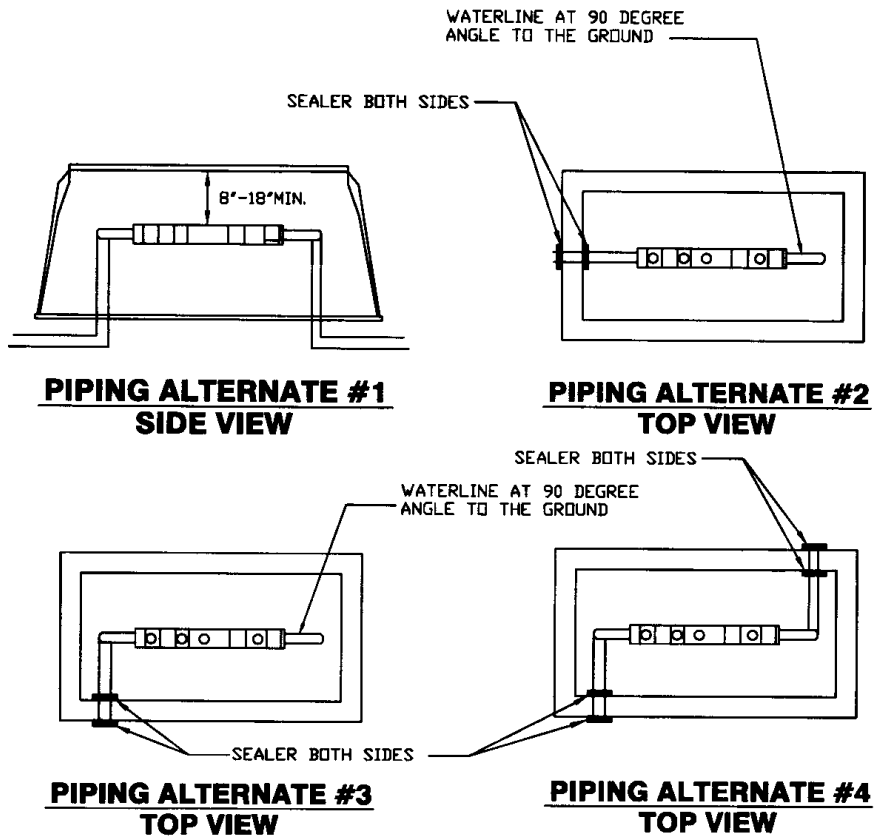
INSTALLATION #2



***NOTE: OTHER TYPES OF INSTALLATION MAY BE NECESSARY DUE TO VARYING FIELD CONDITIONS. CONSULT WITH INSPECTOR BEFORE INSTALLING.**

INSTALLATION #3

ASSEMBLY VARIATIONS



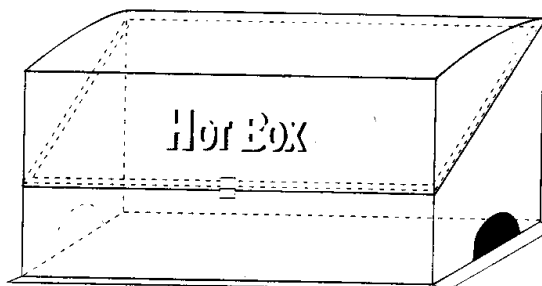
NOTES:

- * ASSEMBLIES SHOULD BE CENTERED IN THE BOX TO ALLOW ACCESS FOR TESTING AND REPAIR.
- * BOX MUST NOT REST ON THE WATERLINE.
- * ENTRY AND EXIT POINTS OF THE WATER LINE MUST BE SEALED ON BOTH SIDES TO PREVENT ENTRY OF WATER AND DIRT. SEE DOUBLE CHECK ASSEMBLY AND HOLE DETAIL.
- * MINIMUM CLEARANCES TO BE MAINTAINED:
 - 8'-18" TOP OF ASSEMBLY TO TOP OF BOX
 - 6" FROM BOTTOM OF DEVICE TO TOP OF GRAVEL
- * A SMALLER BOX MAY BE USED, WITH PRIOR APPROVAL OF THE INSPECTOR, IF SPACE RESTRICTIONS WILL NOT ALLOW INSTALLATION OF THE 1730D OR ITS EQUIVALENT.

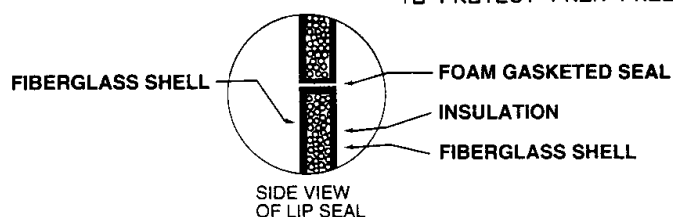
REDUCED PRESSURE ZONE ASSEMBLY INSTALLATION

**ENCLOSURE: HOT BOX, OR EQUIVALENT BOX, SIZED TO
ASSEMBLY SIZE 3/4" TO 2".**

TWO PIECE BOX



**NOTE: BOX SHOULD BE HEATED OR INSULATED
TO PROTECT FROM FREEZING**



**STANDARD COLORS:
-WHITE
-BEIGE**

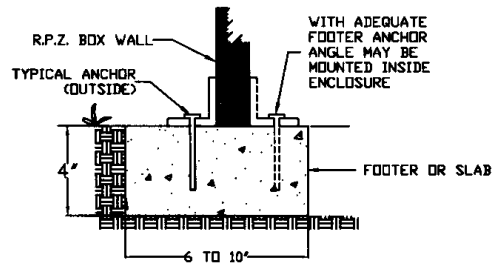
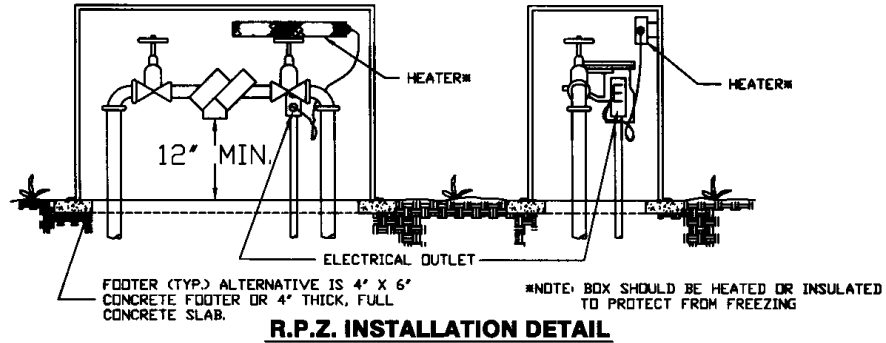
PHYSICAL PROPERTIES

MODEL No.	I.P.S.	INSIDE DEPTH	INSIDE WIDTH	INSIDE HEIGHT	INSULATION "R" VALVE	DRAINAGE CAPACITY
.75	3/4" - 1"	11"	19"	22"	8.0	180 GPM
1	3/4" - 1"	13"	27"	23"	8.0	180 GPM
1.5	3/4" - 1 1/2"	21"	33"	23"	8.0	575 GPM
2	1 1/4" - 2"	13"	39"	35"	8.0	575 GPM

FEATURES

Fiberglass construction, drainage capacity (RPZ devices), engineered heater sizing (protection for -30°F), testing/ maintenance access, ground anchor capabilities and lockable lid.

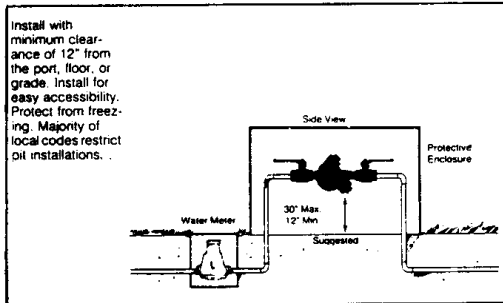
REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY INSTALLATION



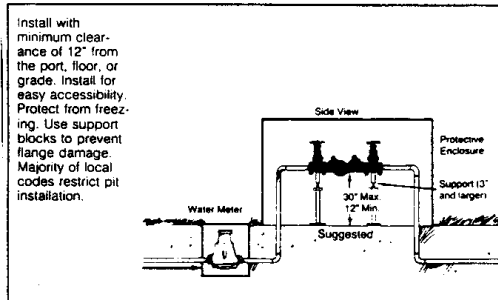
FOOTER OR CONCRETE SLAB (R.P.Z. BOX)

NOTE: IF A PERIMETER FOOTER IS USED THEN THERE MUST BE GRAVEL COVERING THE ENTIRE BOTTOM OF THE ENCLOSURE A FULL TWELVE INCHES DEEP.

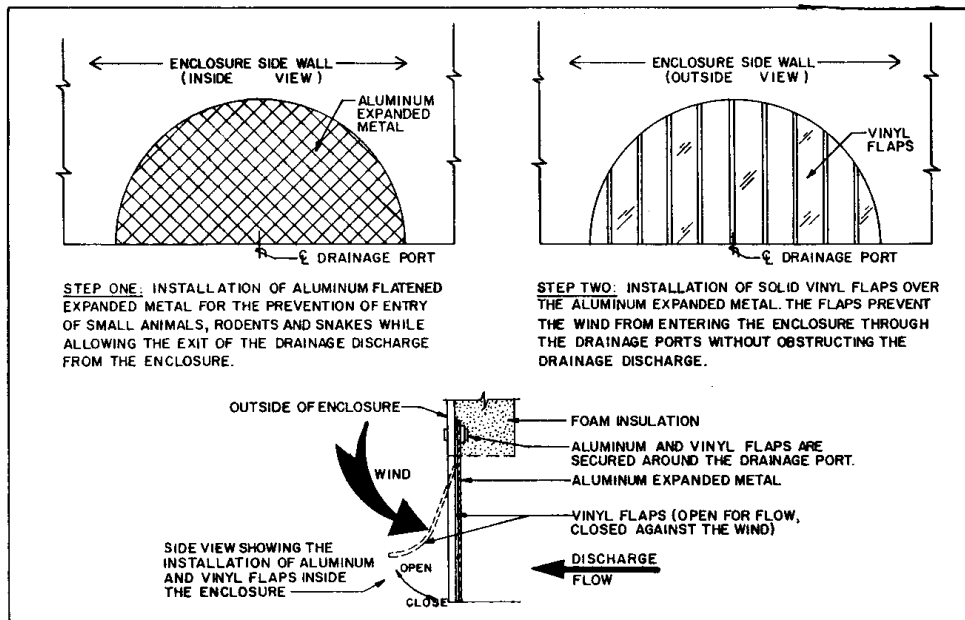
REDUCED PRESSURE BACKFLOW PREVENTER ¾" through 2"



REDUCED PRESSURE BACKFLOW PREVENTER 2½" through 10"



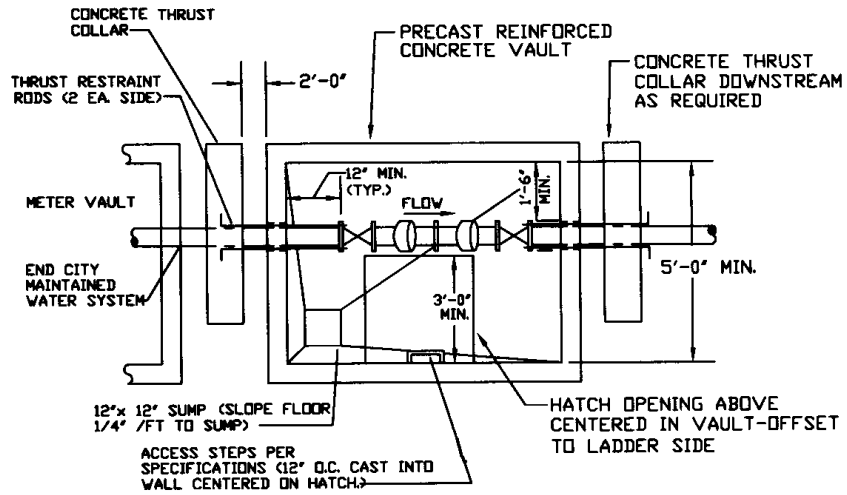
DRAIN DETAIL FOR RPZ BOX ENCLOSURE OR EQUIVALENT



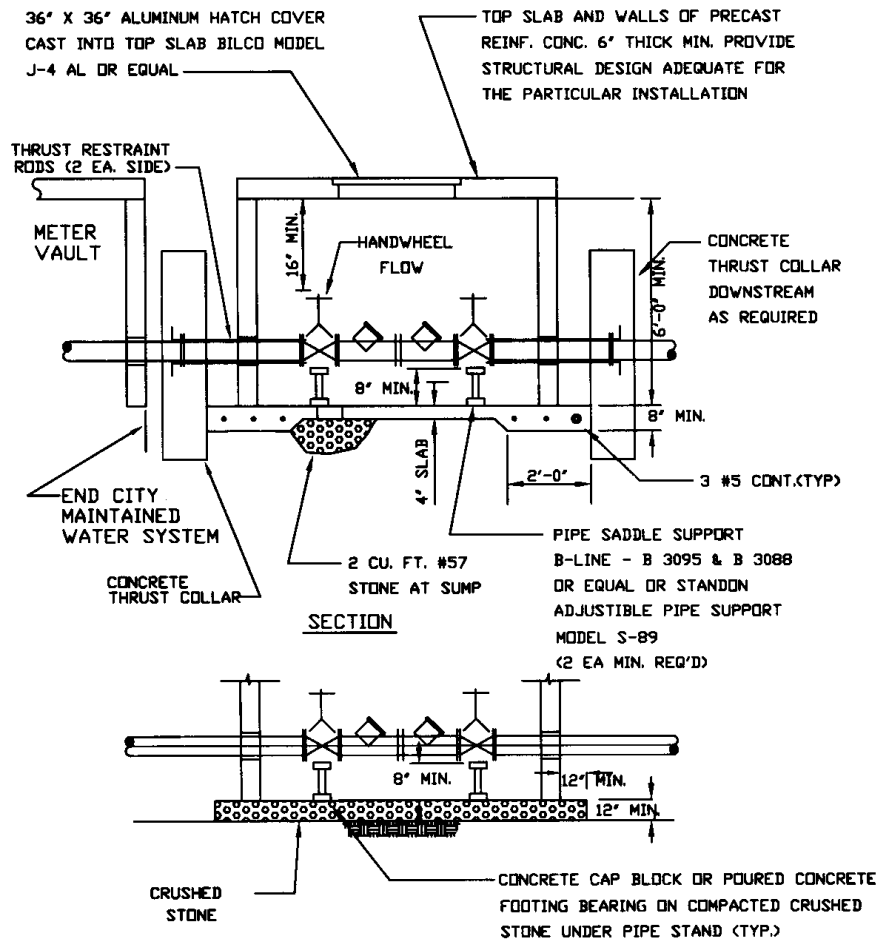
Note:

- All Reduced Pressure Zone Assemblies (RPZ's) are to be installed above ground or inside the facility to protect from freezing. Exposure to freezing will result in improper functioning of an RPZ and may cause un-repairable damage to the assembly.
- **Southern Building Code Section 304.4 - Freezing (1994):** A water, soil or waste pipe shall not be installed or permitted outside of a building or concealed in outside walls or any place where they may be subject to freezing temperatures, unless adequate provision is made to protect them from freezing.
- Facilities requiring an RPZ may be allowed to install it inside provided that either: there are no other connections between the meter and the building **and** it is unlikely one would be installed in the future, **or** a double check is installed at the meter.
- All above ground enclosures for RPZ's are to be sized to the RPZ size or larger per manufacturer's specifications. E.g. A two-inch RPZ must go in an enclosure designed for a two-inch or larger RPZ.
- If a perimeter footer is used then clean gravel covering the entire bottom of the enclosure must be a full twelve inches (12") deep.
- All enclosures are to be designed with drain openings large enough to accommodate a full discharge of the assembly.

2 1/2" AND LARGER DOUBLE CHECK ASSEMBLY



TYPICAL BACKFLOW PREVENTER VAULT DETAIL



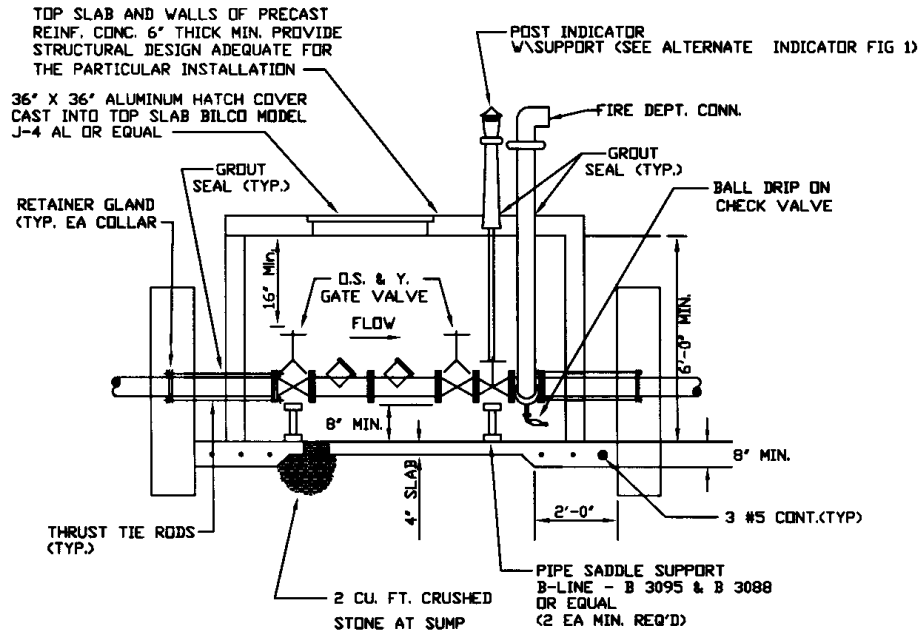
ALTERNATE VAULT BOTTOM DETAIL

NOTES:

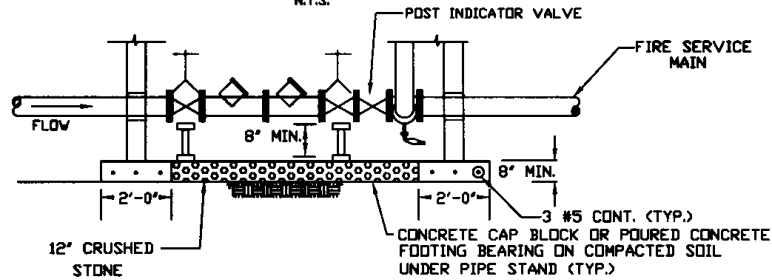
1. DESIGN SHOWN IS FOR NON-TRAFFIC AREAS
PROVIDE STRUCTURAL DESIGN ADEQUATE
FOR PARTICULAR INSTALLATION.

2. SUBGRADE UNDER STRUCTURE AND BACKFILL
AROUND STRUCTURE AND THRUST COLLARS
SHALL BE COMPACTED TO 95% MAX.
DRY DENSITY.

2 1/2" AND LARGER TYPICAL FIRE VAULT



SECTION
N.T.S.



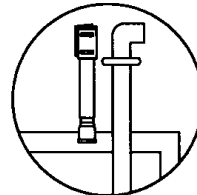
SECTION

ALTERNATE VAULT BOTTOM DETAIL

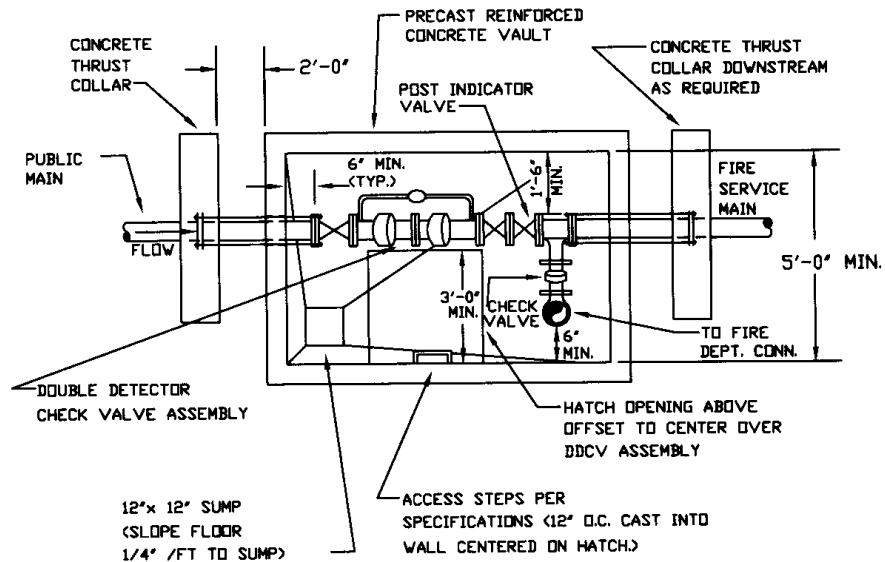
N.T.S.

NOTES:

1. DESIGN SHOWN IS FOR NON-TRAFFIC AREAS PROVIDE STRUCTURAL DESIGN ADEQUATE FOR PARTICULAR INSTALLATION.
2. SUBGRADE UNDER STRUCTURE AND BACKFILL AROUND STRUCTURE AND THRUST COLLARS SHALL BE COMPACTED TO 95% MAX. DRY DENSITY.
3. POST INDICATOR VALVE CAN BE ELIMINATED IF SUPPLIER PROVIDES AN ACCEPTABLE METHOD FOR ATTACHING POST INDICATOR ASSEMBLY TO DOWNSTREAM D.S. & Y GATE VALVE.



ALTERNATE INDICATOR FIG. 1



TYPICAL FIRE SERVICE VAULT DETAIL

N.T.S.

Augusta Utilities
Backflow Prevention Section
360 Bay Street Suite 180
Augusta, Ga. 30901

Phone: (706) 312-4145
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BACKFLOW PREVENTION ASSEMBLY TEST/REPAIR REPORT FORM

Time: _____ Inspector's Name: _____ Date: _____

Customer: _____

Address: _____

Location of Assembly: _____

Type of Assembly: _____ Manufacturer: _____ Model: _____ Size _____
 Serial# _____

Device Location: _____ Line Pressure at time of Test : _____

	Check No. 1	Check No. 2	Differential Pressure Relief Valve	#1 gate or ball (circle one)	#2 gate or ball (circle one)	PVB/SVB
Test Before Repairs	_____ Leaked _____ Closed Tight DROP ACROSS PSID	_____ Leaked _____ Closed Tight DROP ACROSS PSID	Opened at _____ lbs. Differential Pressure	_____ Leaked _____ closed tight	_____ Leaked _____ Closed Tight	Air Inlet Opened @ _____ PSID _____ did not open Check Valve Held @ _____ PSID
Repairs And New Materials						_____ Cleaned _____ Replaced
Test After Repairs	_____ Leaked _____ Closed Tight	_____ Leaked _____ Closed Tight	Opened at _____ lbs. Differential Pressure	Gate or Ball (circle one)	Gate or Ball (circle one)	Air Inlet Opened @ _____ PSID _____ did not open Check Valve Held @ _____ PSID
	Drop Across PSID	Drop Across PSID		_____ Leaked _____ Closed Tight (mark One)	_____ Leaked _____ Closed Tight (mark One)	

ABOVE DATA CERTIFIED TO BE CORRECT

Backflow Device: _____ PASSED _____ FAILED Ga Certification # _____

Tester's Signature _____ DATE _____

Thermal Expansion Device Installed Yes No Location of Thermal Expansion Device _____
 (circle one)

Method of Testing _____ TEST KIT USED _____

Comments: _____

